

# Manufacturers Record

## Industry Construction



\$6.50 per Year.  
Single Copy, 20 Cents.

Baltimore, Md.  
AUGUST 28, 1930

### Doubt and Fear Impede Progress

Shall the great prosperity of this country be seriously impaired by fear? It is true there are probably three million or more unemployed and wages in some quarters have been reduced, yet if we contrast the present period of dullness with former dull times with which this year is sometimes compared, we find conditions wholly different. Real downright want in America is negligible.

Increased prices following the World War were based largely on the increased rate of wages paid to labor, and upon this high wage scale we founded a prosperity that has been the wonder of the rest of the world. It is important that we should keep wages at a high level if for no other reason than because of the buying power of labor, but when we add to the present hesitation in buying the fact that capital has become timid, we can account for the present situation.

Notwithstanding reduction in income on the part of employes and fear engendered in their minds as to whether their positions are secure, savings bank deposits are increasing enormously and debts are being paid at an encouraging rate. Housecleaning and a readjustment process are going on, promising a firm foundation for future growth.

Those who vision the tremendous future before America can have no ground for hesitation in committing themselves to the purchase of supplies, to the erection of buildings or to any other wise and proper investment. Extended plant capacity following the War and the attendant high pressure salesmanship may have caused us to buy things we did not need, but it is a serious question whether we have been buying luxuries or whether we have not been truly adding to our fundamental wealth. Is the money being spent on tens of thousands of young men and women today in our colleges a luxury or is it a means of adding to the wealth of America? Is the radio a luxury or is it a producer of happiness, wider vision, broader education and intelligent inspiration? Who denies the wealth created by the automobile and by good roads?

When we consider all the great things that science and invention are accomplishing we should not hesitate to plan and carry out enterprises that are wise and needed. In a few years natural gas from the Southwest will be turning wheels and heating houses on the Atlantic Seaboard. Science now is heating our homes at the turn of a button and the control of a column of mercury. It is cooling them too. Mechanical engineers have developed methods whereby instead of 90 per cent of our coal being wasted less than 10 per cent will be wasted in future. The time is near when the railroads of this country will be electrified, necessitating an investment of billions.

What a vista is opening before us. Why should we be controlled by fear? It is a time to buy.



*Pemberwick,  
Connecticut  
1845*

IN 1845 when the old Bolt Works of Russell, Burdsall & Ward started by the splashing waters of the old mill dam at Pemberwick, bolt maker and bolt user met face to face. Misunderstandings were cleared up on the spot.

Modern industry is too complicated for that now. Yet the old spirit of frankness and fairness between bolt maker and bolt user is still the guiding force in the three great plants of Russell, Burdsall & Ward.

**RUSSELL, BURDSALL & WARD**  
BOLT AND NUT COMPANY  
PORT CHESTER, N. Y.

ROCK FALLS, ILL.

CORAOPOLIS, PA.

PHILADELPHIA · CHICAGO · DETROIT · SAN FRANCISCO · LOS ANGELES · SEATTLE · PORTLAND



# WHERE ELSE *can you get these* skimmer features

Check up on features of other skimmer-scoops. Compare the helical gear drive on ball and roller bearings, the Northwest positive traction that permits traveling without injury to the subgrade, the "feather-touch" clutch control, high speed shafts on ball bearings, and the many other Northwest features with what others are offering. It's the best buy on the market today!

The double hinge of the adjustable shear leg takes the shock when the dipper is returned to the grade preventing eventual damage to the base casting and bending of the boom.

The adjustable shear leg permits cutting grade at any level with a flat boom.

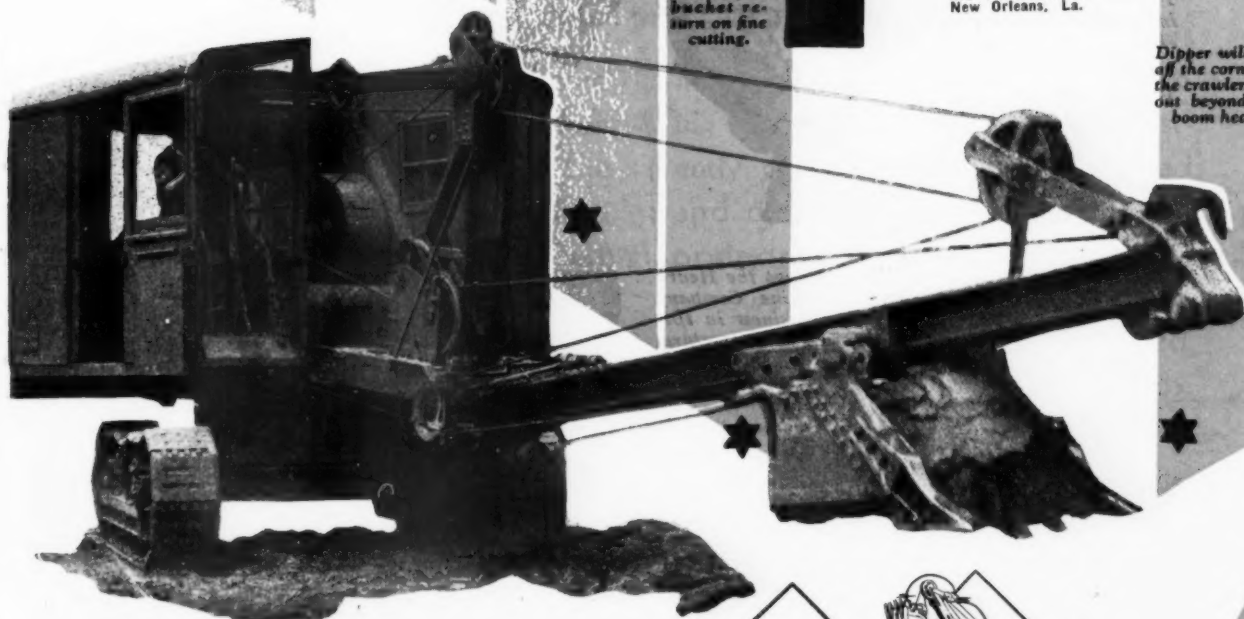
The boom is made of ship channels, not ordinary channels, which have flat flanges allowing the use of flat rollers. Boom is straight and a full box section.

Dipper is returned by power, no delay waiting for it to coast back after each cut, or continual lifting of the boom for bucket return on fine cutting.

#### Branch Offices:

351 Whitehall St.,  
Atlanta, Ga.  
393 N. Main St.,  
Memphis, Tenn.  
1221 S. Lamar St.,  
Dallas, Texas  
1325 Macklind Ave.,  
St. Louis, Mo.  
5 Briarwood Rd.,  
Charlotte, N. C.  
1100 Milby St.,  
Houston, Texas  
816 Howard Ave.,  
New Orleans, La.

Dipper will dig off the corner of the crawler and out beyond the boom head.



#### NORTHWEST ENGINEERING CO.

The world's largest exclusive builders of  
gasoline, oil burning and electric powered  
shovels, cranes and draglines

1733 Steger Building, 28 E. Jackson Blvd.  
CHICAGO, ILL., U. S. A.

M.R. 8-28 Gray



Page  
3

The  
Best Buy  
on the Market  
Today!

# NORTHWEST

*Our  
Fiftieth  
Year*

**Vogt**

**PRODUCTS:**

*Oil Refinery Equipment,  
Drop Forged Steel Valves  
and Fittings, Water Tube  
and Horizontal Return  
Tubular Boilers, Ice Mak-  
ing and Refrigerating Ma-  
chinery, Heat Exchangers.*

**Branch Offices:**

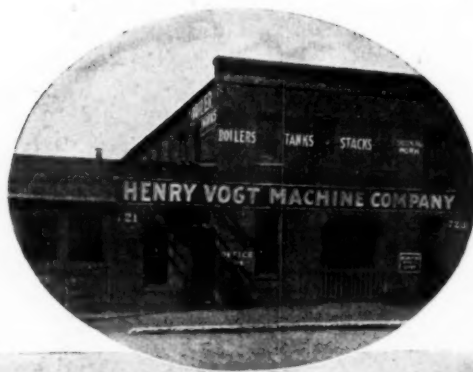
NEW YORK  
CHICAGO  
CLEVELAND  
DALLAS  
PHILADELPHIA



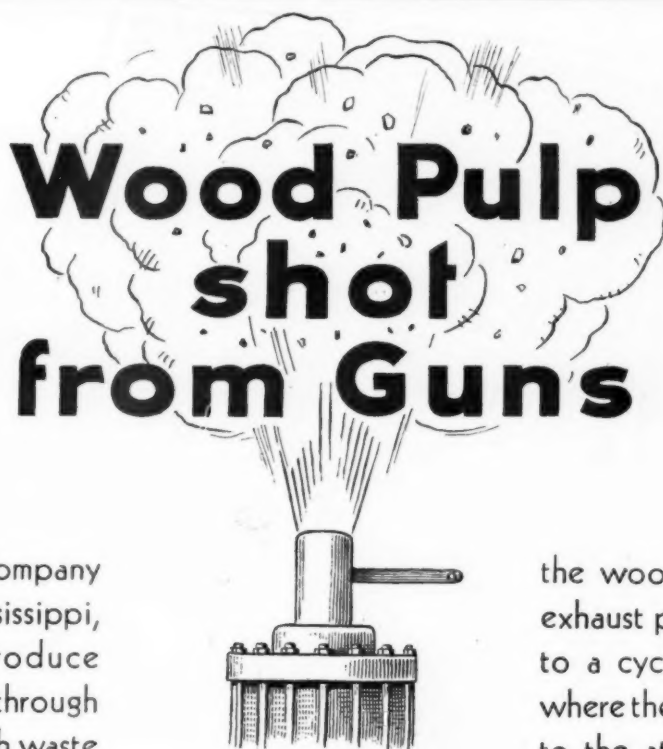
*Fifty years ago the Henry  
Vogt Machine Company  
began its business in this  
modest two story structure.*

**N**INETEEN hundred thirty marks the fiftieth year since the founding of the Henry Vogt Machine Company. During this period Vogt products have come into prominence and are today used the world over. To our friends and customers who have made possible our success we express our hearty appreciation, and pledge ourselves to continue to build only the best in anticipation of their continued patronage. :: ::

**1880-1930**



*Today the plant of the Henry Vogt Machine Company, Louisville, Ky., covers an area of nineteen acres and is one of the most modernly equipped in the country.*



The Masonite Company of Laurel, Mississippi, successfully produce artificial wood through a process in which waste wood is exploded into a fluffy mass and then pressed into boards under heat. In this process wood chips are fed

into one of a series of guns and saturated steam at 800 to 1,000 pounds per square inch pressure is admitted to the gun for a few seconds to soften the natural lignin or binder of the wood and to force the steam into the pores. A quick acting exhaust valve is then opened and the wood is exploded into the exhaust piping at atmospheric pressure. During the exploding operation full boiler pressure is kept on the gun to clear all

**with Steam  
from  
B&W Boilers**

the wood through the exhaust port and piping to a cyclone separator where the steam escapes to the atmosphere and the fibre drops into a chest where it is mixed with water.

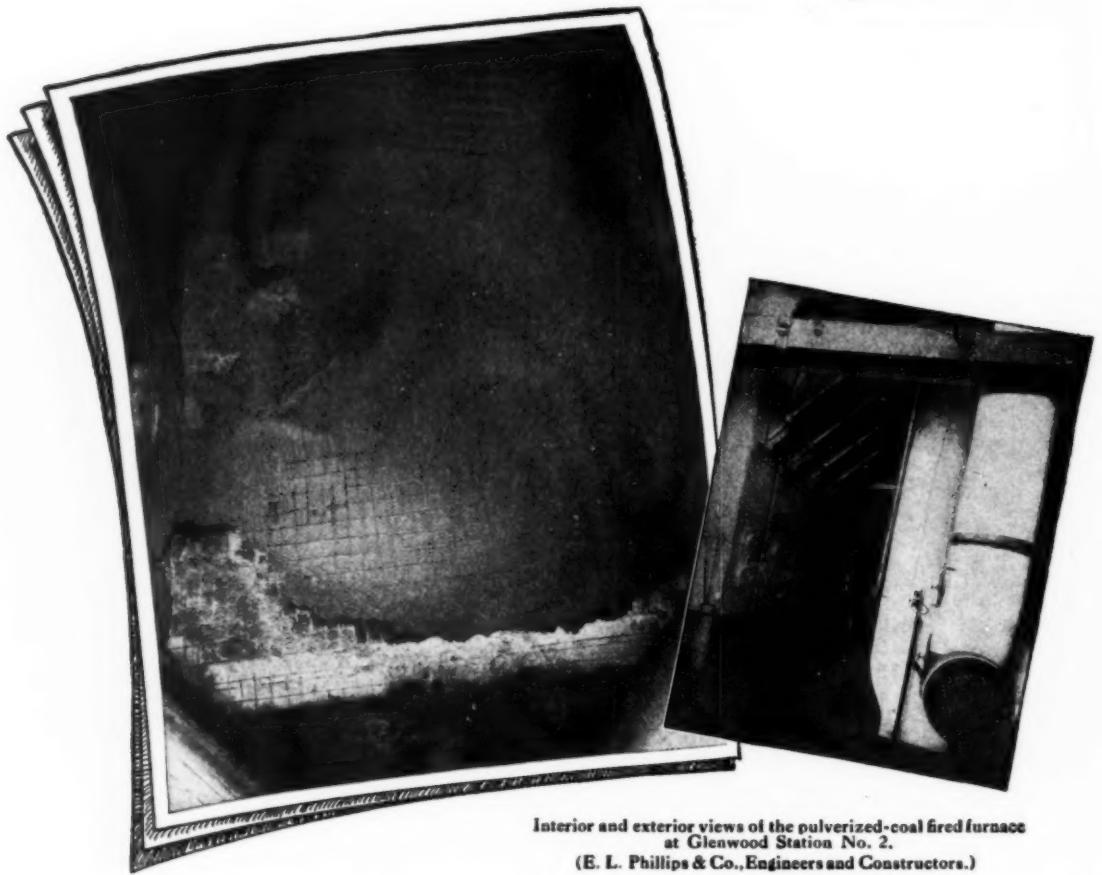
In 1925 a Babcock & Wilcox boiler built to deliver steam at 1,200 pounds pressure was installed to operate the guns. Working under the tearing action consistently caused by the irregular load and discharging steam at 1,000 pounds into air at atmospheric pressure, this boiler served so well that when the plant was increased in 1928 another Babcock & Wilcox boiler of the same type was installed.

To date there are over 30 Babcock & Wilcox boilers either in service or in the process of manufacture that will deliver steam at 1,200—1,400 pounds pressure.

**THE  
BABCOCK & WILCOX  
COMPANY**

85 LIBERTY ST.

NEW YORK, N. Y.



Interior and exterior views of the pulverized-coal fired furnace  
at Glenwood Station No. 2.  
(E. L. Phillips & Co., Engineers and Constructors.)

## Pulverized-Coal Firing Extended at Glenwood No. 2

**A**MONG the public utilities making repeat installations of pulverized-coal firing during the past year is the Long Island Lighting Company (serving practically all of Long Island outside of New York City) for its Glenwood Station No. 2. Approximately 70 per cent of all coal-fired central stations in this country, completed or under construction during 1929, adopted this modern method of burning coal.

The new equipment at Glenwood—ready for service in 1930—is practically a duplicate of that placed in operation in 1928; including two Babcock & Wilcox Boilers (each with a capacity of 300,000 pounds of

steam per hour) fired by the Fuller Lehigh Storage System, with Bailey Furnace Construction.

That Fuller Lehigh apparatus was again chosen for this station is indicative of the satisfactory performance of the original installation.

Those executives and engineers who have installed pulverized-coal firing for power generation know from experience that it is a good investment—yielding high returns by setting new standards in boiler plant performance.

**FULLER LEHIGH COMPANY**  
*A Babcock & Wilcox Organization*  
FULLERTON, PENNA.

# FULLER LEHIGH

PULVERIZED-COAL EQUIPMENT ~ WATER-COOLED FURNACE WALLS

## THE PERFECT APPLICATION OF A PRINCIPLE



### Resists Sticking

Hydraulic pressure available up to 2,000 pounds to the square inch and a lubricant specially compounded by us, are responsible for the ease and convenience of eliminating any tendency to "freeze" in a Nordstrom Valve.

This pressure forces the lubricant down around the plug to a chamber at the bottom of the valve, where the lubricant exerts an upward pressure on the plug, should the plug ever become tight. This hydraulic lubricating principle is patented and positive in action.

"Merco" Lubricants should be used in Nordstrom Valves for the most efficient operation. Carefully compounded from the best materials. A special lubricant for every valve service. "Merco" Pipe Compound permanently stops leaks in joints, gaskets, etc. Ask for details.

### MERCO NORDSTROM VALVE COMPANY

SUBSIDIARY OF THE MERRILL COMPANY . . ENGINEERS

Atlanta - Healy Bldg.  
Boston - 184 Boylston St.  
Buffalo - Genesee Bldg.  
Chicago - 176 W. Adams St.  
Dallas - Magnolia Bldg.  
Detroit - 2842 West Grand Blvd.  
El Paso - 111 So. Virginia St.  
Houston - Petroleum Bldg.  
Los Angeles - 656 So. San Pedro St.  
New Orleans - Masonic Temple Bldg.  
New York - 11 W. 42nd St.  
Pittsburgh - Clark Bldg.  
St. Louis - 317 N. Eleventh St.  
San Francisco - 343 Sansome St.

#### Agencies:

Denver - Republic Supply Company,  
332 Continental Oil Bldg.  
Honolulu - W. A. Ramsey Co., Ltd.,  
Fort & Queen Streets  
Manila - E. W. Sharp, c-o J. A. Murphy Co.,  
Pura Semanillo Bldg.  
Philadelphia - Brown, Wilson & Company,  
1600 Arch St.  
Saginaw - Arthur C. Beckert, 112 Durand St.  
Salt Lake City - National Equipment Co.,  
101 West 2nd South St.  
Tulsa - B. V. Emery & Company, 216 E. Brady Street  
Factories in U. S. - Oakland, Calif. and Belleville, N. J.  
Canada - Peacock Bros., Ltd., Montreal, Toronto, Winnipeg, Vancouver. (Also Sydney, N.S.)  
England - Audley Engineering Co., Ltd., Newport, Shropshire.  
Buenos Aires, Argentine - General Electric, Soc. Anon. Victoria 618 Esq. Peru.

### Resists Leaks

Hydraulic pressure also eliminates leaks in the Nordstrom Valve and assures positive shut-off. The lubricant, under pressure, is forced through ducts down and around the plug, and when the valve is turned, complete sealing results. At the same time the plug is lubricated.

Nordstrom Valves are used wherever leak-resistant and non-sticking valves are essential. Made in a wide range of sizes and of various metals to withstand the conditions of the most severe of services.

Ask for latest Catalog.


# NORDSTROM VALVES

**Stop the Leaks**

In the construction of Dart Unions, the spherically constructed Bronze to Bronze seats eliminate the possibility of a leak. Extra heavy iron ends add strength and durability. Every Union is tested, and we guarantee to replace any defective union returned to us with two perfect ones.

We will mail you a free sample on request.

A shape and size to fit every need. Flanges, L's, T's, etc.



**DART UNIONS**

E. M. DART MFG. CO., Providence, R. I.  
The Fairbanks Co., Sales Agent.  
Dart Union Co., Ltd., Toronto, Canada.

**CHARLESTON DRY DOCK & MACHINE CO.**  
SUCCESSORS TO YALE & MURDOCH CO.

**MARINE AND STATIONARY BOILERS**  
Repairs to Steel and Wooden Vessels

8,000-ton Dry Dock—1,500 and 600-ton Marine Railways  
CHARLESTON, S. C.

**BOILERS—SAW MILLS**

Largest Works of the Kind in the South

Engines—Pumps—Boiler Tubes—Grate Bars—Castings

**LOMBARD IRON WORKS & SUPPLY CO.**  
AUGUSTA, GA.

Reinforcing Bars—Structural, Bar and Sheet Steel  
Parts and Repairs Belting—Packing

**TANKS—STACKS**

**TITUSVILLE POWER AND HEATING BOILERS**

THE  
TITUSVILLE  
IRON WORKS CO.  
TITUSVILLE, PENNA.

FOR ALL  
INDUSTRIAL REQUIREMENTS

BRICK—CHIMNEYS—CONCRETE  
**BOILER BRICKWORK**

**The Rust Engineering Co.**  
Engineers and Contractors  
BIRMINGHAM, ALA.  
PITTSBURGH—WASHINGTON—NEW YORK—CHICAGO

High Temperature Cements

**FIREBOND THERMOLITH**

REFRACTORIES

Fireclay High-Alumina Silica Chrome Magnesite

Acid-Proof Brick

**HARBISON-WALKER REFRACTORIES CO.**  
World's Largest Producer of Refractories  
Pittsburgh, Pa.

**EXCELSIOR** All Standard and Special Shapes

**FIRE ALABAMA CLAY PRODUCTS CO. BRICK**  
BIRMINGHAM, ALABAMA

**WATER** Purified Softened Filtered

For every industrial and domestic use

Filters—Pressure and Gravity  
Softeners—All types

127 years old Founded 1802

**WM. B. SCAIFE & SONS CO.**  
Executive Offices, OAKMONT, PA.

PITTSBURGH NEW YORK CHICAGO

**DECALSO**

Water Minus All Hardness

Insures even dyeing; smooth running threads; reduction in thread and needle breaks in knitting.

**AMERICAN WATER SOFTENER COMPANY**  
S. E. Cor. 4th and Lehigh Ave. PHILADELPHIA

**WATER FILTERS**

Pressure and Gravity type for Municipal Water Supplies, Rayon Manufacturing Plants, Textile Finishing Establishments, Raw Water Ice Plants, Laundries, Etc.

**ROBERTS FILTER MANUFACTURING COMPANY**  
604 Columbia Avenue Darby, Pennsylvania

**ALLIS-CHALMERS MFG. CO.**  
MILWAUKEE, WIS., U. S. A.

DESIGNERS AND BUILDERS OF

Steam Turbines, Electrical Machinery, Steam, Gas and Oil Engines, Centrifugal Pumps, Crushing & Cement Machinery, Etc.

**P&H** Harnischfeger Corporation

Established 1884  
Crane and Hoist Division  
4427 W. National Ave.  
Milwaukee, Wis.

Traveling Cranes and Hoists

**No. 8 Imperial Punch Angle Iron Shear No. 4**



Operating handles will not become disengaged. Roller Bearing.

This style made in 3 sizes, Nos. 7, 7½, 8.

Weight, 18 lbs.; capacity, ¼" thru ½" iron.

**No. 50 Angle Iron Mitre Notcher and No. 51 Angle Iron Bender**



Capacity, 2"x2"x¼" Angle Iron or Smaller

Capacity 3"x3"x¼" Angle Iron. Weight, 44 pounds. Inserted Tool Steel Blades.

Write for Catalog and Price List on Entire Line

**WHITNEY METAL TOOL COMPANY**  
117 FORBES STREET ROCKFORD, ILL.

## FIFTY YEARS

Experience in the designing and  
manufacturing of

### MATERIAL HANDLING EQUIPMENT

puts us in a position to supply equipment of proven  
worth at the lowest possible price.

*Call on us for*

Apron Conveyors  
Belt Conveyors  
Chain Conveyors  
Gravity Roll Conveyors  
Spiral Conveyors  
Bucket Elevators  
Elevator Buckets  
Skip Hoists  
Car Pullers

Sheet Metal and Structural Steel Work

THE WEBSTER & WELLER MFG. COMPANIES

1820-1856 N. Kostner Ave.

CHICAGO, ILL.

*Offices in the principal cities*

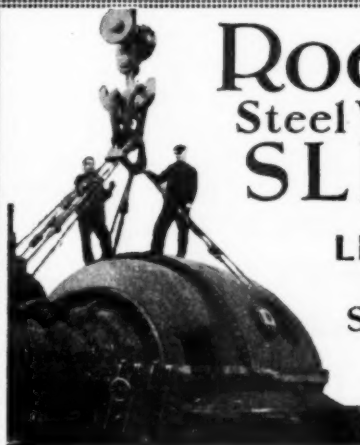


*They have to be  
Stronger!*

--- Peerless gears "are stronger" because they are *cut* --- not cast --- of alloy heat treated steel, exactly as in automobile transmissions. . . . They *have to be stronger*, because we guarantee them for five years against abnormal wear or break! Look for this guarantee when buying a hand chain hoist.

*Write for Bulletins.*

**THE HARRINGTON COMPANY  
PHILADELPHIA**



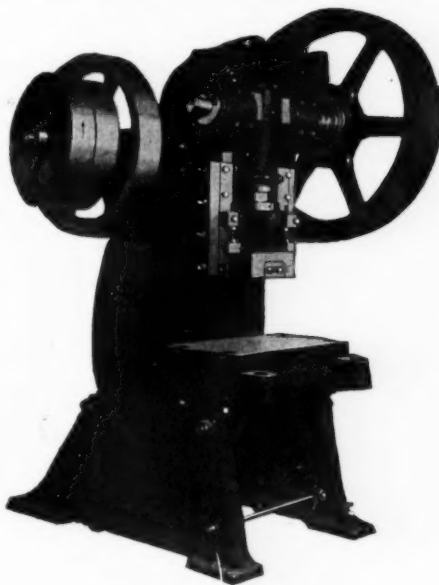
**Roebbling  
Steel Wire Rope  
SLINGS**

**LIFT ANY  
LOAD  
SAFELY**

John A. Roebbling's Sons Company  
Trenton, New Jersey

# BLISS

The economy way  
of making sheet metal parts



## Inclinable Presses

Where pieced tinware, electrical apparatus, cans, brass goods, trimmings, etc., are being made, most of the operations can be performed with greatest speed, accuracy, and economy on Bliss Inclinable Presses. This type of press is adapted for nearly every kind of blank cutting, perforating, forming, and combination die work, and is in particularly wide use because of its exceptional range of usefulness and convenience of operation.

The Bliss Inclinable Press is but one of the large Bliss line of power presses, embracing a type for every sheet metal operation. Tell us what you are doing and let us give you full information on the Bliss press type best suited to your individual requirements.

SINCE  
1857

**BLISS for MACHINERY**

E. W. BLISS CO., BROOKLYN, N. Y., U. S. A.

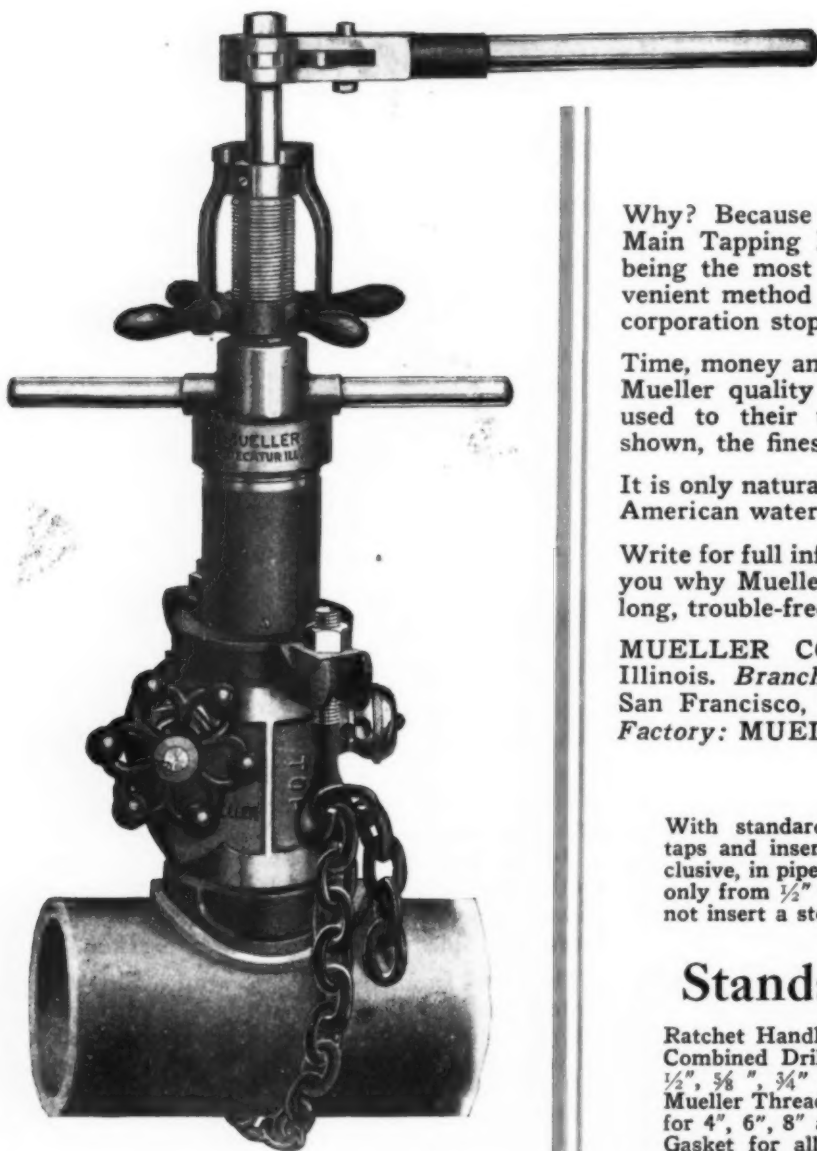
Factories: Brooklyn, N. Y. Hastings, Mich. Salem, Ohio

Sales Offices: Detroit Cleveland Chicago Boston Philadelphia

Cincinnati New Haven Rochester

Foreign Factories and Offices: London, Eng. Turin, Italy Paris, France

# 90% of all the U. S. waterworks use the Mueller Tapping Machine



Why? Because for many years the Mueller Water Main Tapping Machine has been recognized as being the most efficient as well as the most convenient method of tapping a main and inserting a corporation stop while the main is under pressure.

Time, money and labor are saved the Mueller way. Mueller quality and Mueller efficiency have been used to their utmost to make the "B" Machine shown, the finest precision instrument of its kind.

It is only natural, therefore, that at least 90% of all American water works use it exclusively.

Write for full information. We will be glad to show you why Mueller quality is your best assurance of long, trouble-free service.

MUELLER CO. (Established 1857), Decatur, Illinois. *Branches:* New York, Dallas, Atlanta, San Francisco, Los Angeles, Chicago. *Canadian Factory:* MUELLER, Limited, Sarnia.

With standard equipment, this machine makes taps and inserts corporation stops  $\frac{1}{2}$ " to 1", inclusive, in pipe under pressure, and will make taps only from  $\frac{1}{2}$ " to 2" inclusive, in dry pipe, but will not insert a stop above 1".

## Standard Equipment

Ratchet Handle, Combined Feed Nut and Yoke; Combined Drills and Taps with Mueller Thread,  $\frac{1}{2}$ ",  $\frac{3}{8}$ ",  $\frac{3}{4}$ " and 1". Screw Plugs with outside Mueller Thread,  $\frac{1}{2}$ ",  $\frac{3}{8}$ ",  $\frac{3}{4}$ " and 1". Iron Saddles for 4", 6", 8" and 10" C. I. Pipe. Large Rubber Gasket for all sizes of Cast or Wrought Iron Pipe. Small Rubber Gasket for top of Saddle; Round Link Chain with Eyebolt and Hook for pipe up to 12". Chain Wrench; Body Cleaning Chisel; Lubricating Oil and Cutting Grease.

# MUELLER

PLUMBING, BRONZE AND VITREOUS WARE

## Another Glorious Tower Salutes the Southern Sky

THIS thirty-one-story addition to the sky-line of San Antonio exemplifies to a marked degree the modern trend in architecture. Beauty of line and detail, refinement of finish, efficiency in lay-out and operation have been attained through artistic and practical conception and faithful execution.

The necessarily inherent qualities . . . strength, safety, durability, fire-resistance . . . have been built in through the use of TENNESSEE STRUCTURAL STEEL.



### SMITH-YOUNG TOWER

Atlee B. & Robt. M. Ayres, Architects.  
McKenzie Construction Co., General Contractors.  
Virginia Bridge & Iron Co., Fabricators and Erectors of the Steel Work.



## Tennessee Coal, Iron & Railroad Company

General Offices: Brown-Marx Building, BIRMINGHAM, ALA.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES OF UNITED STATES STEEL CORPORATION:

AMERICAN BRIDGE COMPANY  
AMERICAN SHEET AND TIN PLATE COMPANY  
AMERICAN STEEL AND WIRE COMPANY

CARNEGIE STEEL COMPANY  
CYCLONE FENCE COMPANY  
FEDERAL SHIPBUILDING AND DRY DOCK COMPANY

ILLINOIS STEEL COMPANY  
MINNESOTA STEEL COMPANY  
NATIONAL TUBE COMPANY

THE LORAIN STEEL COMPANY  
TENNESSEE COAL, IRON & R. R. COMPANY  
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors—United States Steel Products Co., Columbia Department: San Francisco, Los Angeles, Portland, Seattle, Honolulu. Export Distributors—United States Steel Products Co., New York City

# ECONOMICS OF THE ELECTRICAL INDUSTRY

## *Knitting steel joints with ELECTRIC NEEDLES ...in Silence*



*Arc-welding eliminates rivets in steel construction*



The head-splitting rat-a-tat-tat of the riveter's hammer is sounding its own death-knell. Relief for riotous nerves is at hand—in the shape of the new arc-welding process of building construction, developed by Westinghouse. Now tall buildings mount skyward in silence, while strange blue and purple lights\* play on masked men who unite giant girders with electricity almost as our grandmothers knitted a woolen sock.

Electric arc-welding has for some time been recognized as an important

asset to manufacturing. Through its use, many complicated parts, formerly cast, forged or riveted are now made up economically of simple structural shapes. Now arc-welding has demonstrated its numerous advantages in building construction work. It is not only quiet, but rapid, efficient and economical as well. Frequently it requires less steel than a riveted structure—with no loss in strength. Architects and builders, with the close cooperation of Westinghouse, are putting this modern development into use.

*Tune in the Westinghouse Salute over WJZ and the coast-to-coast network, every Tuesday evening.*

# Westinghouse

## COMPLETE FOUNDRY SERVICE

The MOCCASIN BUSHING COMPANY, manufacturers of MOCCASIN OIL DISTRIBUTING BUSHINGS, is prepared to supply engine brasses, brass or bronze castings of all descriptions and MOCCASIN solid or cored bronze bars at reasonable prices.

Send your specifications to the MOCCASIN BUSHING COMPANY, 2000 Chestnut Street, Chattanooga, Tennessee. Your order will receive our prompt attention.

**DEEMER STEEL CASTING CO.**  
DEPENDABLE CASTINGS  
Shipped PROMPTLY  
PATTERN and MACHINE WORK  
CARBON MANGANESE ALLOY  
NEW CASTLE, DELAWARE

## ELECTRIC STEEL CASTINGS

Weighing from 1 lb. to 500 lbs. each

Quantity Production A Specialty

Nickel, Chrome and Other Alloy

Quick Delivery

Inquiries Solicited

**CRUCIBLE STEEL CASTING COMPANY**

LANSDOWNE, DELAWARE COUNTY, PA.

## WE MAKE A SPECIALTY OF HIGH GRADE GREY IRON AND SEMI-STEEL CASTINGS

All Kinds of Machine Work. Special Machines Made to Order.  
Prices Will Suit You. Prompt Service.

Salem Foundry & Machine Works

Salem, Va.

## CONTRACT MACHINE WORK

Parts and Complete Machines  
Heat Treating and Grinding

Mail blue prints for quotations

**GENERAL MACHINE WORKS**  
YORK, PA.

## GALVANIZING HOT DIPPED PROCESS

The largest job galvanizing plant in the United States  
GALVANIZED PRODUCTS FURNISHED

**JOSEPH P. CATTIE & BROTHERS**  
PHILADELPHIA, PA.

## GALVANIZING—Hot Process

Cadmium Plating a Specialty

GALVANIZED PRODUCTS FURNISHED

**BIRMINGHAM GALVANIZING CO.**  
Birmingham, Ala.

## From One Source

You can secure your entire steel requirements from Bethlehem — with the assurance that each item is as good and dependable as the facilities of a completely equipped organization with years of experience can make it.

### BETHLEHEM STEEL COMPANY

General Offices: Bethlehem, Pa.

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis.

Pacific Coast Distributor: Pacific Coast Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Honolulu.

# BETHLEHEM

## GENERAL

Industrial Machine Work — Heavy and Medium  
Builders of Special Machinery  
Brick Yard Supplies

**FERNHOLTZ MACHINERY CO.**

Boyle Ave. and Missouri Pacific Railroad, St. Louis, Mo.

## PATTERNS

Patterns are the start of the job.  
Start the job right with correct made patterns.

**A. W. HAAS PATTERN CO.**

179½ Garnett St. S. W.

Atlanta, Ga.

# STEEL

DESIGNERS, FABRICATORS, ERECTORS  
of Structural Steel and Concrete Reinforcing Bars  
Immediate Shipments from Charlotte Stock  
Little Pittsburgh  
Office and Plant: CHARLOTTE, N. C.

**SOUTHERN  
ENGINEERING  
COMPANY**

## RICHMOND STRUCTURAL STEEL CO.

ORNAMENTAL IRON — GREY IRON CASTINGS

RICHMOND, VA.

BRANCH  
NORFOLK, VA.

## DIETRICH BROTHERS

Structural and Ornamental Iron and Steel Works  
Large Stock of Standard and Bethlehem Shapes

**CONCRETE REINFORCEMENTS**  
BALTIMORE, MD.

## QUALITY PIG IRON PLUS

Intelligent Cupola Service

**SLOSS-SHEFFIELD STEEL & IRON CO.**

BIRMINGHAM, ALA.

# McClintic-Marshall Company

Steel Bridges *and* Buildings  
Tanks, Barges, Pipe, Transmission Towers  
*and* Plate Work

General Offices:- PITTSBURGH, PA.

OFFICES IN PRINCIPAL CITIES

## THE PHOENIX IRON CO.

MANUFACTURERS OF OPEN HEARTH

Structural Steel Shapes, Beams,  
Channels, Angles, and Ship Shapes

Works: Phoenixville, Pa. Main Offices: Philadelphia, Pa.

### OFFICES:

22 S. 15th St., Philadelphia 30 Church St., New York  
Munsey Building, Washington 110 State St., Boston  
City Savings Bk. Bldg., Albany, N. Y. 26 Victoria St., London

## THE PHOENIX BRIDGE CO.

Engineers, Fabricators, and Erectors  
Bridges and Other Structures of Steel

CAPACITY 60,000 TONS

Works and Engineering Offices:

Phoenixville, Pa.

## CAROLINA STEEL & IRON COMPANY GREENSBORO, N. C.

Sales Office:—709 Nissen Bldg., WINSTON-SALEM, N. C.

Structural Steel FOR Buildings and Bridges

Capacity 1000 Tons per Month. 3000 Tons in Stock

The Largest Steel Fabricators in the Carolinas

## CONVERSE BRIDGE & STEEL CO. STRUCTURAL STEEL

For

Industrial Buildings, Mines, Refineries,  
and the Building Trade

CHATTANOOGA

TENNESSEE

## CHAMPION BRIDGE COMPANY

WILMINGTON, OHIO

Manufacturers of

Bridges and Structural Work

Southern Offices:

ATLANTA, GA. FORT LAUDERDALE, FLA.



## BELMONT IRON WORKS

PHILADELPHIA NEW YORK EDDYSTONE

Southern Sales Office, Charlotte, N. C.

Engineers Contractors Exporters

Structural Steel

Complete Industrial Buildings

## ATLANTIC BRIDGE COMPANY

ENGINEERS • CONTRACTORS • ERECTORS

BRIDGES • FOUNDATIONS • BUILDINGS

GREENSBORO, NORTH CAROLINA

## NASHVILLE BRIDGE COMPANY



Engineers—Fabricators and Erectors  
of Bridges. Buildings, Transmission  
Towers and other Types of Structural  
Steel.

## Bristol Steel & Iron Works, Inc.

STRUCTURAL STEEL FOR BRIDGES, BUILDINGS  
AND ALL INDUSTRIAL PURPOSES

STEEL PLATE & MISCELLANEOUS IRON WORK

BRISTOL, VA.—TENN.

**STEEL**

For structural steel, standard steel buildings, steel roof  
and floor trusses, steel tanks, steel plate construction write  
THE INGALLS IRON WORKS CO. Plants: Birming-  
ham, Ala., Verona, Pa. (in the Pittsburgh District).  
Offices: New York, New Orleans, Tampa, Atlanta, Jackson,  
Miss.

## ROANOKE IRON & BRIDGE WORKS, Inc.

Structural and Ornamental Iron

Wrought Steel Fences

Gray Iron Castings

FROM 1 TO 10,000 LBS.

Write for Estimates

ROANOKE, VA.

Estab.  
1858

PATTERSON

## BLOCKS

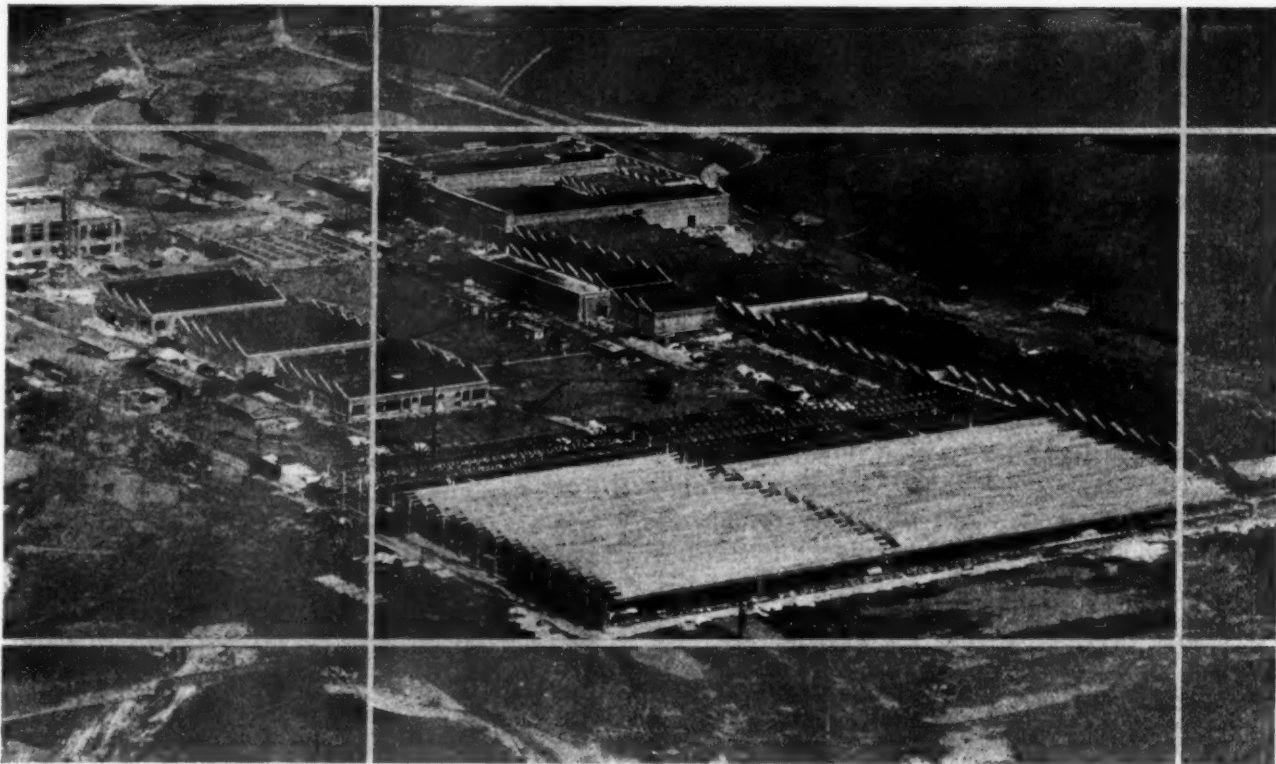
A substantial block for every  
purpose.

Write for Catalog No. 22

W. W. Patterson Co.

57 Water St., Pittsburgh, Pa.





Rayon Plant, American Enka Corporation, Asheville, N. C. H. K. Ferguson Co., Cleveland, Engineers and Builders. We furnished the steel work, over 5000 tons

### A Landscape Gone Industrial

SO many acres of countryside, so many feet of foundations, so many tons of steel, brick and roofing, all shaped to a definite plan and the stage is set for an industrial romance.

Things are happening over this country today, and particularly in the South, that were never dreamed of.

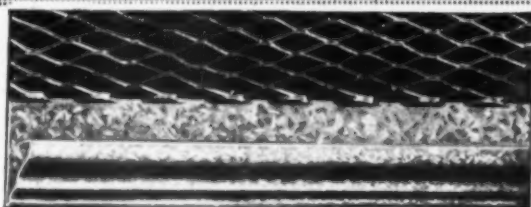
A few years back Rayon was scarcely heard of. Today it bulks large in the affairs of many communities which, except for this wonder of chemistry, would still be thinking and dealing mostly in the products of the soil as they have for generations past.

Partly by the incident of location, but more especially because of a reputation of thorough capability in steel construction, we have participated in most of the important rayon projects in the South, including the American Enka Corporation at Asheville, N. C., which is said to be the largest initial plant unit so far built.

We shall be glad to assist you with designs and estimates on your steel requirements whether large or small. Or if you are not as yet decided on the use of steel, we would like to tell you of its advantages and economies,—with no obligation on your part.

**VIRGINIA BRIDGE & IRON CO.**  
 Roanoke      Birmingham      Memphis      Atlanta      New Orleans  
 New York      Los Angeles      Charlotte      Dallas      El Paso

**VIRGINIA BRIDGE**  
 STEEL STRUCTURES



### *This Expansion Metal Casing Is A Profitable Best Seller*

The expanded metal wings key the plaster in the casing in a way that is permanent. The neat metal casing adds a touch of distinction around windows and doors and may be finished in same tone as the walls. Every home and other building is a logical prospect. Drop us a line for complete information.

#### MILCOR STEEL COMPANY

(formerly Milwaukee Corrugating Co., Milwaukee, Wis.  
and The Eller Mfg. Co., Canton, Ohio)

Main Offices 1451 Burnham St., Milwaukee

Plants at Milwaukee, Wis., Canton, Ohio, La Crosse, Wis.,  
Chicago, Ill. and Kansas City, Mo.

Sales Offices: New York, 418 Pershing Sq. Building; Boston,  
Mass., 726 Little Building; Atlanta, Ga., 207 Bona Allen Building;  
Minneapolis, Minn., 642 Bldrs. Exchange Building;  
Little Rock, Ark., 104 W. Markham Street

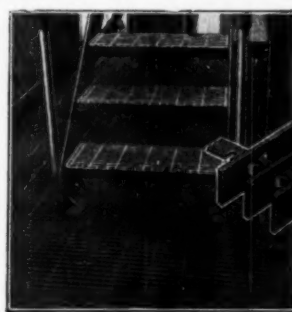
## **MILCOR** PRODUCTS

### **Kerlow Steel Floors**

222-238 CUMBER AVENUE  
JERSEY CITY, N. J.



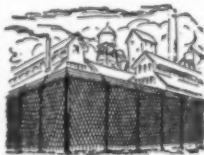
**Non-Slipping**



For  
strong and  
safe flooring—  
**WALTER BATES STEEL  
FLOOR GRATING  
and  
STAIR TREADS**

### **WALTER BATES STEEL CORPORATION** GARY INDIANA.

### **Stewart's** IRON AND WIRE FENCE



CHAINLINK  
FACTORY FENCE

Iron Picket Fence  
Chainlink Wire Fence  
Plain and Ornamental  
Iron Gates  
Chainlink Gates  
Miscellaneous Iron  
Work

For Full Information  
Write



ORNAMENTAL  
IRON GATES

### **THE STEWART IRON WORKS COMPANY**

619 Stewart Block

INCORPORATED

CINCINNATI, OHIO

### **FLOOR NEVERSLIP PLATES**

*"The Plate with Perfect Diamonds"*

### **AMERICAN PRESSED STEEL**

Commercial Trust Building—Philadelphia—Penn.

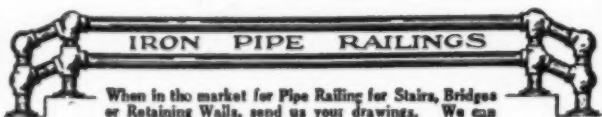
WE are the sole and only manufacturers of the machine  
known under the trade name and trade mark

### **"CEMENT GUN"**

Let us aid you by giving you full information how your new  
construction or repair is made with this machine and its product  
**GUNITE**

Experience Has Taught Us All Best Methods

**CEMENT GUN CO., INC., Allentown, Penna.**



PIPE RAILING CONSTRUCTION CO., Long Island City, New York

When in the market for Pipe Railing for Stairs, Bridges  
or Retaining Walls, send us your drawings. We can  
quote you prices that will be worth considering.



### SCHOOL DESKS

**H. H. Andrews & Co.**  
CHICAGO  
107 So. Wabash Avenue

Oil-Water-Gas Lines  
Hydro-Electric Penstocks  
Interior Hull Protection  
Tank Protection  
Concrete Waterproofing

### **FOSTER I.B.M.** Impregnated Bituminous Materials PROTECTIVE COATINGS--PAINTS--CEMENTS

Write for Foster Catalogue

### **BENJAMIN FOSTER COMPANY**

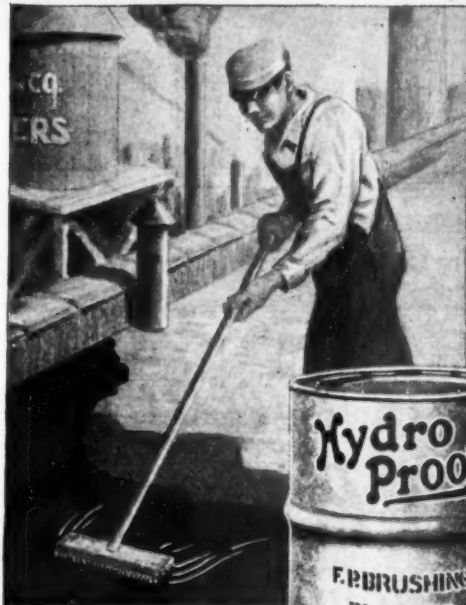
Manufacturers--Contractors--Distributors

20th and Venango Streets

PHILADELPHIA

Structural Steel Paints  
Industrial Paints  
Plastic Cements  
Floor Cements for  
Wood Block--Linoleum and Tile

# PROTECTING ROOFS



F. P. Brushing Plastic is packed in 5-gallon, 10-gallon, 20-gallon, 30-gallon and 50-gallon containers.



## Roofs that Never Leak

IT is a simple matter to apply F. P. Brushing Plastic to any roof, whether of wood, slate, tile, or metal. It does not require trowelling, but is easily applied with roofing brush or pusher.

F. P. Brushing Plastic is a combination of pure asphalt and Canadian long-fibre asbestos, with just sufficient quick-drying solvent to give it the requisite plasticity. Once in place, it is fire-resistant and unaffected by moisture, fumes, or temperature changes. It never cracks or checks, and effectively covers and fills small holes and cracks and makes the roof water-tight.

A coating of F. P. Brushing Plastic has unusual durability.

THE ASPHALT PRODUCTS CO.,  
717 Free Street, Syracuse, New York

### Other Products:

Hydro Proof Waterproofing	Zonophalt Armored Roofing
Bitumet	Silver Seal Aluminum Paint
Hydro Proof Floor Coating	Hydro Proof Plastic
	Hydro Proof Plaster Bond

# WITH F. P. BRUSHING PLASTIC

## THE CUTLER MAIL CHUTE

In its perfected form—the outcome of long experience, designed to meet the requirements of public use under Postoffice Regulation. Simple and substantial in design and construction, durable in finish, with an artistic quality appreciated and much commended by Architects. \* \* \* Details, information on request.

THE CUTLER MAIL CHUTE COMPANY

General Offices and Factory

ROCHESTER, N. Y.

## Cement-Gun Construction Work

THE RUST ENGINEERING CO.

Engineers and Contractors on all kinds of  
Cement-Gun Work

WOODWARD BUILDING, BIRMINGHAM, ALA.

New York Pittsburgh Washington Chicago

## AMERICAN ELEVATORS

PASSENGER AND FREIGHT

AMERICAN

ELEVATOR and MACHINE CO., INC.

Established in 1898

LOUISVILLE, KENTUCKY



## THE GEORGIA MARBLE COMPANY

Producers and Manufacturers of

GEORGIA MARBLE

Tate, Georgia

Atlanta Chicago Cleveland Dallas New York

WINDOW  
PLATE  
ART

Richmond,  
Va.

GLASS

ESTABLISHED 1872

BINSWANGER & CO.

(INCORPORATED)

STORE FRONT CONSTRUCTION

MIRRORS  
BEVELING  
SKYLIGHT

Memphis,  
Tenn.

ELECTRIC AND  
HAND POWER

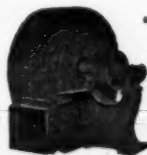
Manufacturers Of

ELEVATORS  
DUMB WAITERS

FREIGHT AND  
PASSENGER

MILLNER COMPANY

St. Louis, Mo.



Designers, Manufacturers and Contractors  
of

BLOW PIPE INSTALLATIONS

also High Pressure Long Distance  
Blower Systems

NATIONAL BLOW PIPE & MFG. CO., LTD.  
NEW ORLEANS, LA.

# BROOKS-SCANLON

## CORPORATION



*"And I'll Tell You  
Why  
You Should Buy  
Brooks-Scanlon Lumber"*



**Because** - After drying and dressing our lumber is properly cared for—it is stored in Moisture and Dust Proof Bins. It reaches you bright and clean and with proper moisture content. It eliminates complaints.

This is the fourth of a series of "Good Reasons WHY" you should buy Brooks-Scanlon lumber. Watch succeeding issues of this paper



DIRECT WESTERN UNION WIRE IN OUR OFFICE



### BROOKS-SCANLON CORPORATION

FOLEY, FLORIDA

Manufacturers

### Dense Long Leaf Yellow Pine Lumber & Timbers

OUTPUT 100 MILLION ANNUALLY



SELLERS GARAGE, BIRMINGHAM, ALABAMA

*Warren, Knight and Davis, Architects.*

*E. R. Maynard Construction Co., Builders.*

THERE is no type of building on which TERRA COTTA cannot be used to advantage. It is usually associated with bank and office buildings, court houses and other public and commercial buildings of all kinds. But Warren, Knight & Davis, of Birmingham, certainly found a splendid use for it on the one story garage pictured above.



## Atlanta Terra Cotta Company

Glenn Building

Atlanta, Georgia

Factory at East Point, Georgia

*Southern Factory of*  
Atlantic Terra Cotta Company  
19 West 44th Street  
New York

*Southwestern Office*  
A. P. Clark, District Manager  
Praetorian Building  
Dallas, Texas



*Zinc Chloride treated wood, painted white, in the roof of a mill.*

## Get 3 to 10 Times longer life from wood

### **Zinc Chloride Treatment**

*eliminates several costly replacements  
due to rot and decay*

It's one thing to prolong the life of structural timber; it's another to treat low priced lumber and make it outlast more expensive wood. But these things Zinc Chloride does.

For over 50 years Zinc Chloride has been the standard salt preservative, protecting wood from *rot and decay*. The Zinc Chloride treatment has been used successfully under all climatic conditions and in various applications known to be conducive to early rotting of wood.

But always it prolongs the timber's life and eliminates the need of costly replacements. Zinc Chloride treated wood is sometimes justly termed PERMANENT WOOD.

**The Grasselli Chemical Co.**

Incorporated



Cleveland, Ohio

Branches in 19 Cities

SEND COUPON FOR THIS INTERESTING BOOK



THE GRASSELLI CHEMICAL CO.  
629 Euclid Ave. Cleveland, Ohio

Please send me without cost or obligation your Zinc Chloride booklet "Looking Ahead Twenty Years in Wood Utility."

Name .....

Address .....

City .....

State .....

**GRASSELLI ZINC CHLORIDE**  
For Wood Preservation

# Actinic Glass

*for Textile Mills*

*Manufactured by*  
**PENNSYLVANIA  
WIRE GLASS CO.**

Will in various ways  
greatly reduce glare  
and in most cases  
eliminate window  
shades

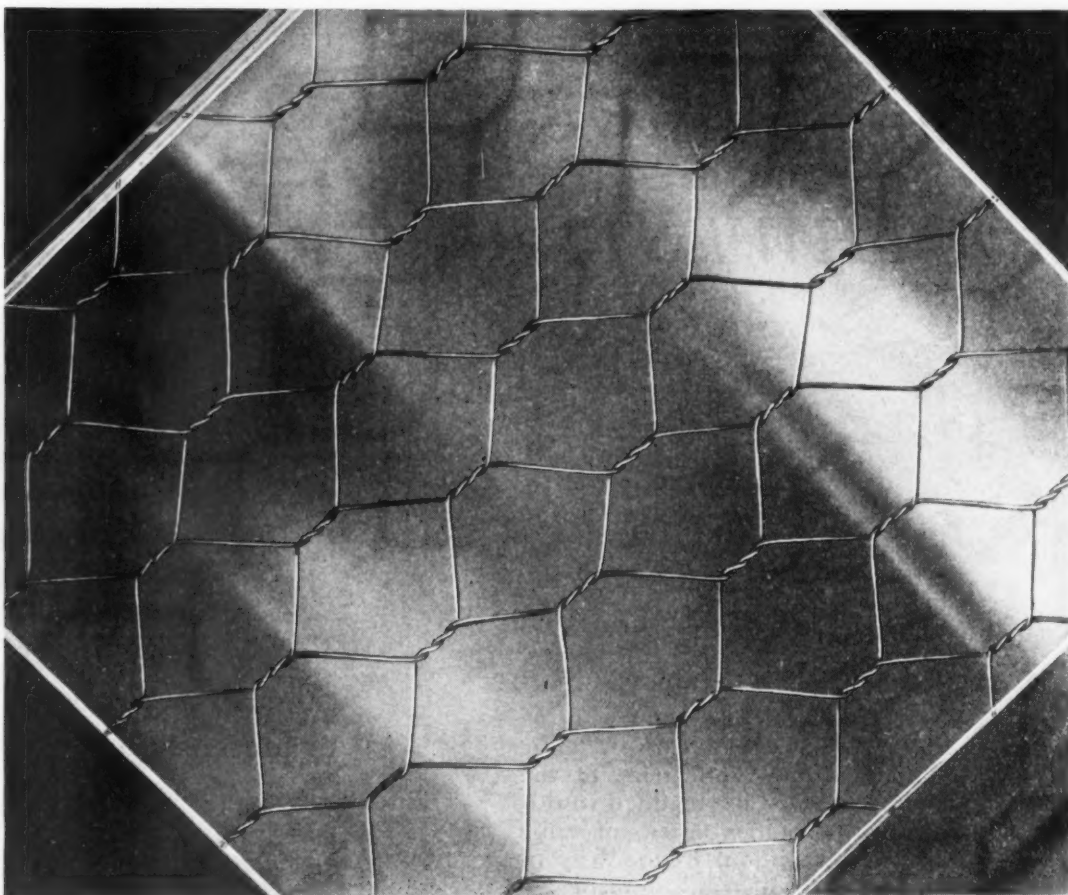
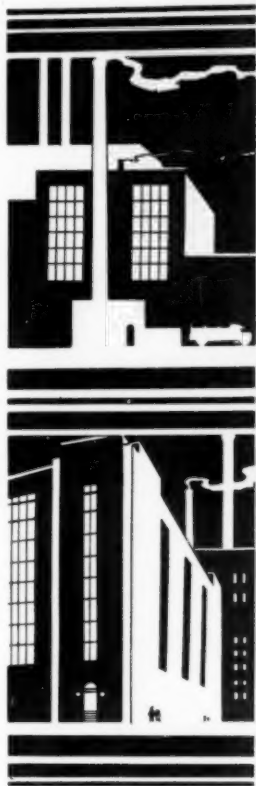
*Distributed by*

**HIRES TURNER  
GLASS COMPANY**  
PHILADELPHIA, PENNA.

Rochester Washington Albany  
Baltimore

*or through any glass jobber*

No. 2



## *Specify~*

Polished wire glass of high transparency free from bubble clusters on the wire, as manufactured by the Blue Ridge Glass Corporation. « « « «



All Blue Ridge glass is made from plate glass batch. You can assure the use of figured and wire glass of uniform plate glass quality by specifying Blue Ridge Glass throughout the building.

# BLUE RIDGE GLASS CORPORATION

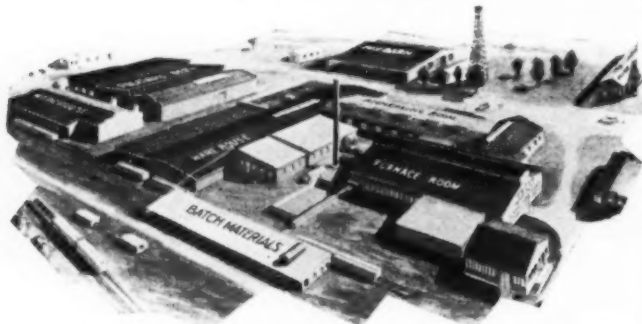
CHICAGO...55 E. Washington St.    KINGSFORT, TENN.    NEW YORK...1 Madison Ave.

---

---

Ad No. 1 of a Series of Twelve

## The Southwest and the SOUTHWESTERN



FACTORY AND GENERAL OFFICES: OKMULGEE, OKLA.

**I**N the past ten years, a large number of new industries of the South and West have added to this territory permanent assets of value beyond conception, in the way of modern industrial enterprises, housed in modern well lighted industrial buildings of the latest and finest types, and daylighted by **SOUTHWESTERN** products, especially manufactured for industrial purposes.

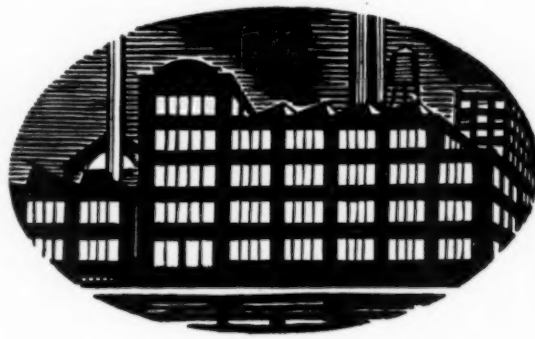
Organized and maintained to serve the builders of the South and West, this large modern glass plant with 150,000 sq. ft. of floor space, manufacturing a complete line of **ROLLED, FIGURED and WIRE** glass, is strategically located to give the best possible service. Your industrial daylight problems, regardless of size, will always receive our most careful consideration.

Write us for samples or any other information pertaining to industrial or commercial daylight.

*There is a Southwestern  
distributor in your  
territory.*

**SOUTHWESTERN  
SHEET GLASS CO.  
OKMULGEE,  
OKLAHOMA**

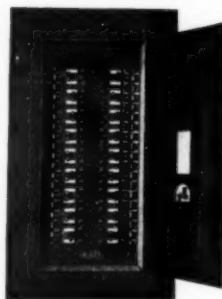
## Ready for 24 hour service



The **FA** single piece molded sections are foolproof, have no parts to loosen and require no maintenance during the life of the building in which they are installed.



### PANELBOARDS



—render service continuously. Replacement of sections or parts are never necessary as they do not wear out. Think what this means.

*The national network of 80  
offices provide experienced  
men near you, who gladly  
help on panelboard and  
switchboard problems.*

## Frank Adam ELECTRIC COMPANY

ST. LOUIS

Atlanta, Ga.  
L. A. Crow,  
64 Cone St., N. W.  
Baltimore, Md.  
Wolfe-Mann Mfg. Co.,  
312 S. Hanover St.  
Boston, Mass.  
J. J. Cassidy,  
231 Congress St.  
Buffalo, N. Y.  
Ralph E. Jones,  
1890 Hertel Ave.  
Chicago, Ill.  
Major Equipment Co.,  
Inc.,  
4603 Fullerton Ave.  
Cincinnati, Ohio  
E. F. Schurig,  
44 East Third St.  
Dallas, Texas  
R. S. Wakefield,  
1814 Allen Bldg.  
Denver, Colo.  
Alex. Hibbard, Inc.,  
1940 Blake St.  
Detroit, Mich.  
H. H. Norton,  
2683 Wabash Ave.  
Kansas City, Mo.  
Robert Baker,  
19 E. 14th St.

Los Angeles, Calif.  
E. Zinsmeyer,  
1127 S. Wall St.  
Memphis, Tenn.  
C. B. Rutledge,  
203 Monroe Ave.  
Minneapolis, Minn.  
Leo H. Cooper,  
422 Builders' Ex. Bldg.  
New Orleans, La.  
W. J. Keller,  
203 Natchez Bldg.  
Magazine & Natchez Sts.  
New York  
Fred Kraut,  
182 North 11th St.  
Brooklyn  
Omaha, Nebr.  
B. J. Fleming,  
213 S. 12th St.  
Orlando, Florida  
F. W. Knoepple,  
610 Richmond Ave.  
Philadelphia, Pa.  
W. A. McAvoy,  
244 North 10th St.  
Pittsburgh, Pa.  
B. Frank Perry, Inc.,  
319 Third Ave.  
St. Louis, Mo.  
O. H. Rottman,  
3650 Windsor Place

San Francisco, Calif.  
Lee Van Atta,  
340 Fremont St.  
Seattle, Wash.  
Electric Engineering  
Sales Company,  
2914 First Ave., S.  
Tulsa, Okla.  
P. E. Ebersole,  
214 S. Victor St.  
Toronto, Can.  
Amalgamated Elec.  
Co., Ltd.  
Gen. Sales Office,  
370 Pape Ave.,  
11 Charlotte St.  
Vancouver, Can.  
Amalgamated Elec.  
Co., Ltd.  
Granville Island  
Winnipeg, Man., Can.  
Amalgamated Elec.  
Co., Ltd.  
677 Notre Dame Ave.  
Hamilton, Ont.  
Amalgamated Elec.  
Co., Ltd.  
57 John St., N.  
Montreal, Can.  
Amalgamated Elec.  
Co., Ltd.  
1006 Mountain St.



### Cool... Refreshing Drinks

Every manufacturing plant should have adequate drinking facilities. They should have sanitary fountains. It means much over the hot months of summer.

Install Rundle-Spence fountains—all who drink from them are refreshed and invigorated—ready for more productive work. And they have a big sanitary feature of design.

Send for our latest catalog which describes and illustrates R-S health "bubblers."

**RUNDLE-SPENCE MFG. CO.**

63 Fourth St., Milwaukee, Wisconsin

## CALCASIEU

Long Leaf

Yellow Pine

*"Supreme Structural  
Wood of the World"*

MANUFACTURED BY

**INDUSTRIAL  
LUMBER COMPANY, INC.**

ELIZABETH

LA.

## Gulf States Creosoting Co.

PLANTS AT

HATTIESBURG, MISS., MERIDIAN, MISS., JACKSON, MISS.,  
SLIDELL, LA., BRUNSWICK, GA., BIRMINGHAM, ALA.

Main Office: HATTIESBURG, MISS.

### CREOSOTED MATERIAL

INCLUDING

Lumber, Timbers, Piles, Telephone and  
Telegraph Poles and Cross-Arms,  
Cross-Ties, Etc.

We also treat with Zinc Meta-Arsenite (colorless)

## Delaware Wood Preserving Co.

Sales Office: Finance Building, Philadelphia

Plant: Newport, near Wilmington, Delaware

### SERVICE

ALL forest products treated with  
all standard preservatives by  
all standard processes.

Creosoted Ties, Piling, Poles and Timbers

Creosote Oil

Docks for Ocean Vessels

**American Creosote Works, Inc.**

New Orleans, La.

**Savannah Creosoting Co., Inc.**

Savannah, Ga.

**Atlantic Creosoting Co., Inc.**

Norfolk, Va.



### CREOSOTED TIMBERS

for all purposes

POLES POSTS PILING BEAMS  
CROSS TIES BRIDGE MEMBERS MINE SHORING

Send for Catalogue

**Taylor-Colquitt Company**  
Spartanburg - - - South Carolina

SINCE 1879

# MOORE

DRY KILNS

SCIENTIFIC LUMBER DRYING

MOORE DRY KILN COMPANY  
NORTH PORTLAND, ORE. JACKSONVILLE, FLA.

## Northern Hard Rock Maple Flooring

Holt Hardwood Co., Oconto, Wis.

MEMBERS OF MAPLE FLOORING MANUFACTURERS ASSOCIATION



## POWER—PICK-UP MILEAGE

400° F END POINT  
ANTI-KNOCK

AT NO EXTRA COST

GULF NO-NOX MOTOR  
FUEL is Aviation Grade  
374° F. End Point.

*At the Sign of the Orange Disc*

**GULF REFINING CO.**



THE NEWPORT NEWS RACK RAKE AT THE SPRINGFIELD  
PLANT OF THE UNITED ELECTRIC LIGHT CO.

## THE NEWPORT NEWS RACK RAKE

**REMOVES**

TRASH LEAVES GRASS LOGS

**ASSURES**

CONTINUOUS EFFICIENT OPERATION

*Send for Descriptive Bulletin*

NEWPORT NEWS SHIPBUILDING AND DRY DOCK CO.  
NEWPORT NEWS, VA. 233 BROADWAY, NEW YORK CITY

## CAST IRON PIPE -AND FITTINGS-

American Cast Iron Pipe Company  
Birmingham, Ala.  
SALES OFFICES IN PRINCIPAL CITIES

## UNIVERSAL CAST IRON PIPE

THE CENTRAL FOUNDRY COMPANY  
Graybar Bldg., 43rd St. and Lexington Ave., New York, N. Y.  
Chicago Birmingham Dallas San Francisco

no packing no caking no bell holes

## GLAMORGAN PIPE & FOUNDRY CO.

GENERAL FOUNDERS AND MACHINISTS  
LYNCHBURG, VA.

One-Fifth  
The  
Weight of  
Cast Iron  
Pipe



One-Third  
The  
Weight of  
Wrought  
Pipe

### AN ABSOLUTELY TIGHT DURABLE PIPE

The lap riveted seam repeats its cycle every twelve inches, forming a broad-stiffening rib of great value, and makes Root pipe one-third stronger than any other type of pipe construction. Light weight and simple connections reduce transportation handling and erection costs. Suitable for conveying water, air, gas, exhaust steam and powdered coal.

ABENDROTH & ROOT MANUFACTURING COMPANY  
Pipe Specialists Continuously Since 1867 Sales Office: Woolworth Bldg. N. Y.

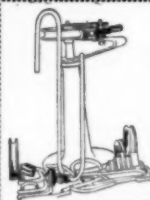
## SALT GLAZED SEWER AND CULVERT PIPE

Wall Coping, Drain Tile, Flue Lining, Chimney Tops, Hollow  
Tile, Fire Proofing, Vitrified Brick, Fire Brick

BANNON'S PATENT LIDDED PIPE FOR STEAM CONDUITS

BANNON PIPE CO.

LOUISVILLE, KY.

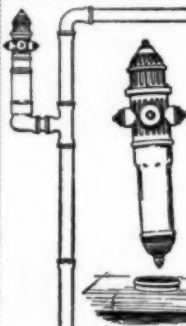


### 1 OF 21

Sizes and Types of Hand and Motor Operated Cold Pipe  
Bending Machines we make bending 1/4 to 8 in. Pipe.

Cost of Bending  
1-in.—3 cents 3-in.—20 cents 6-in.—80 cents  
2-in.—5 cents 4-in.—40 cents 8-in.—\$1.00  
Over 8,000 in. use. Send for Catalogue.  
Pipe Threading and Cutting Machines 1/2" to 16."

AMERICAN PIPE BENDING MCH. CO.  
11 Pearl Street Boston, Mass.



## Mathews Fire Hydrant

Because the entire barrel, with  
all parts, is removable, broken  
"MATHEWS" hydrants are easily  
replaced without digging.

CAST IRON PIPE and FITTINGS  
SAND SPUN (Centrifugally Cast)  
and PIT CAST  
GATE VALVES VALVE BOXES

## R. D. WOOD & CO.

PHILADELPHIA, PENNA.

"The Whole  
Works" Out  
in a Jiffy

In business continuously since 1803

# WATER SHORTAGE

*Let us assist you in this time of need*

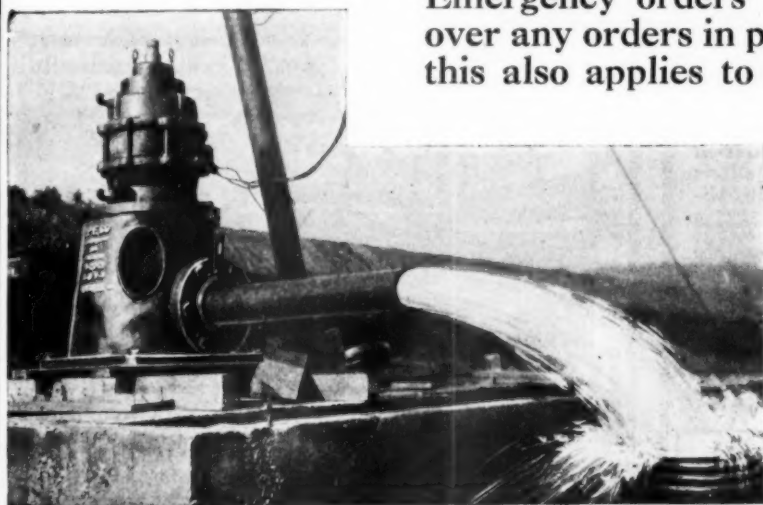
**W**E offer our many years of experience and our best services to communities requiring additional pumping equipment to take care of their requirements resulting from the great drought, which has prevailed.

Emergency orders will be given precedence over any orders in process at our factories and this also applies to large concerns located in cities and towns experiencing a water shortage.

Our agents located in over 100 cities are at your service.

**Luitwieler Pumping Engine Co.**

Manufacturers of  
DEEP WELL PUMPING EQUIPMENT  
Rochester, N. Y., U. S. A.



## RoTURBO CENTRIFUGAL PUMPS

Manistee Iron Works Co., Manistee, Michigan

## PLATT IRON WORKS - DAYTON, OHIO.

Smith-Vaile **PLATT** Pumps



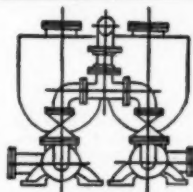
Steam and Power  
Pumping Machinery

## SAND PUMPS

A wide range of types in sizes 4" to 15"  
For belt drive and for direct connection to motor

*Illustrated booklet on request*

**GEORGIA IRON WORKS**  
AUGUSTA, GA.



## AUTOMATIC SEWAGE EJECTORS

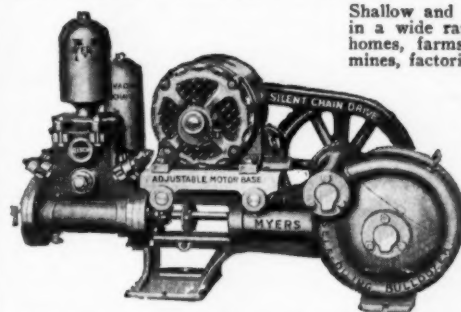
SIMPLE, EFFICIENT, ECONOMICAL

Also Miller Flushtank Siphons, Sewage-Disposal Apparatus, Convertible Diaphragm-Plunger Pumps, Sewer Jointing Compounds.

**PACIFIC FLUSH-TANK CO.**

Write nearest office for catalog interested in.  
4241 Ravenswood Ave. CHICAGO 9 Park Place NEW YORK

## MYERS SELF-OILING POWER PUMPS



Shallow and deep well types in a wide range of sizes for homes, farms, estates, mills, mines, factories and innumerable other places. Recent improvements simplify installation and maintenance and give them greater sales and service values than ever before.

Write or Wire.

**THE F. E. MYERS & BRO. CO., Ashland, O.**  
PUMPS—WATER SYSTEMS—HAY TOOLS—DOOR HANGERS



Patent Applied for

## COOK DEEP-WELL TURBINE

SELF-OILING-WEATHERPROOF

This is the Pump YOU have been hoping for - - -

Foolproof - Trouble-proof

Compact

Sturdy

Efficient

Adaptable

BULLETIN - 36

**A. D. COOK, Inc.**  
Lawrenceburg—Indiana



## SOUTHLAND PRODUCTS

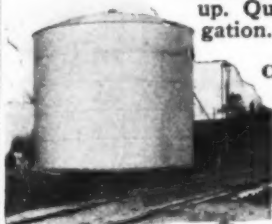
STAND PIPES  
SMOKE STACKS  
TOWERS and TANKS  
STEEL RIVETED  
PIPE

Chattanooga Boiler & Tank Co.  
CHATTANOOGA, TENN.

**TANKS**

## Horton Storage Tanks

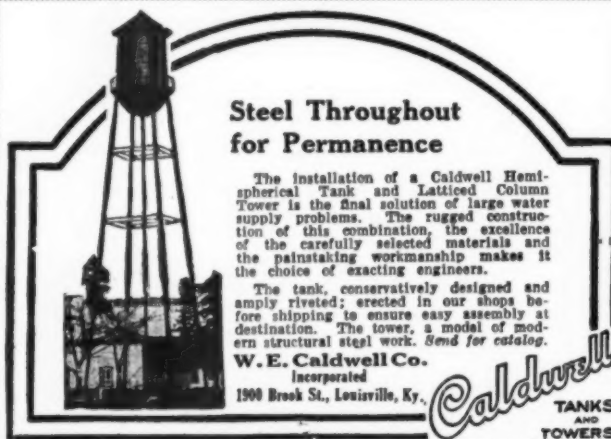
Field-erected storage tanks built in standard capacities from 25,000 gallons up. Quotations furnished without obligation.



### CHICAGO BRIDGE & IRON WORKS

Birmingham ..... 1530 Fifth St., North  
Atlanta ..... 1314 Rhodes-Haverty Bldg.  
Dallas ..... 3308 Magnolia Bldg.  
Cleveland ..... 2216 Union Trust Bldg.  
Chicago ..... 2106 Old Colony Bldg.  
New York ..... 3113 Hudson Terminal  
Detroit ..... 1510 Lafayette Bldg.  
Philadelphia ..... 1419 Jefferson Bldg.  
Boston ..... 1510 Consolidated Gas Bldg.  
San Francisco ..... 1040 Rialto Bldg.

Elevated Tanks -- Gas Holders -- Railroad Tanks  
Standpipes -- Storage Tanks -- Steel Plate Work



### Steel Throughout for Permanence

The installation of a Caldwell Hemispherical Tank and Latticed Column Tower is the final solution of large water supply problems. The rugged construction of this combination, the excellence of the carefully selected materials and the painstaking workmanship makes it the choice of exacting engineers.

The tank, conservatively designed and amply riveted; erected in our shops before shipping to ensure easy assembly at destination. The tower, a model of modern structural steel work. Send for catalog.

**W. E. Caldwell Co.**  
Incorporated

1900 Brook St., Louisville, Ky.

*Caldwell*  
**TANKS  
AND  
TOWERS**



Biggs Welded or Riveted  
High Pressure Tanks,  
Vessels, Retorts, and Steel  
Plate Construction of  
every description. Write  
for folder shown at left.



**THE BIGGS BOILER WORKS CO.**  
Kent and Bank Streets, Akron, Ohio

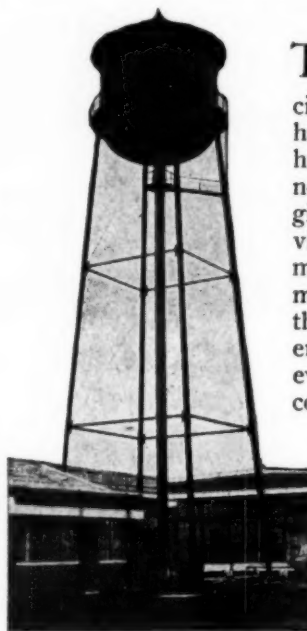
## STEEL TANKS

ANY SIZE FOR ANY PURPOSE

PITTSBURGH-DES MOINES STEEL COMPANY  
11 NEVILLE ISLAND - PITTSBURGH, PA.

DES MOINES NEW YORK CHICAGO ATLANTA DALLAS SEATTLE SAN FRANCISCO

## • C O L E •



**T**ANKS and towers designed to meet any special requirement. They have been developed to a high state of effectiveness and are designed to give uninterrupted service. They embody the most revised requirements of insurance authorities and have been erected in practically every section of the country.

*We also specialize in  
Fuel Oil Storage  
Tanks, Oil and Water  
Storage Tanks, Acid  
Tanks, Vats, Chemical  
Tanks, Storage Bins,  
Stacks, and other  
forms of Steel Plate  
Construction.*

♦ ♦ ♦

**R. D. COLE MANUFACTURING CO.**

Established 1854

NEWNAN, GA.

New York Office  
5 Beekman St.

## TANKS

BOILERS ENGINES  
BARGES DRYERS  
and MACHINERY

BUILT TO ORDER

*Write for Further Information*

**J. S. SCHOFIELD'S SONS CO.**  
MACON, GA.

**AIR-TIGHT STEEL TANK CO.**  
PITTSBURGH, PA.



**TANKS FOR:** High pressure gas and air storage—Pneumatic water systems—Gasoline and oil storage—Oil burning equipment—Open top—Welded. **ATSCO** Genuine Copper Braised Tanks for high pressure — the tightest, safest, strongest tank it is possible to construct by any known process. **ASME** code tanks.

## PERFORATED METALS

We punch and perforate steel, copper, brass, zinc, aluminum, tin and all other metal to meet every requirement.

The experience of 43 years perforating metals is yours for the asking. Our illustrated catalogue will interest you. Copy sent on your request.

### CHARLES MUNDT & SONS

490 Johnston Avenue

JERSEY CITY, N. J.

### PERFORATED METALS HEADQUARTERS

Cotton Seed Oil Works a Specialty

Send for Samples

ERDLE PERFORATING CO. Rochester, N. Y.

### MANHATTAN PERFORATED METAL CO., INC.

48 17-37th Street, Long Island City, N. Y.

### PERFORATORS

of All Kinds of Metals for All Industries  
Write for Copper, Brass, Tin, Zinc or  
Aluminum Catalog

### Perforated Metals SCREENS OF ALL KINDS

Chicago Perforating Co.

2445 West 24th Place

Tel. Canal 1459

CHICAGO, ILL.

## DRYERS

FOR ALL MATERIALS

AMERICAN PROCESS CO.

Dodge Bldg.,  
53 Park Place

NEW YORK CITY

### Perforated Metal Screens for every purpose

also elevator buckets MITCO Products—In-  
of all kinds; chutes; terlocked Steel Grating;  
hoppers; stacks and Shur-Site Stair Treads;  
tanks. Armorgrids.

HENDRICK MANUFACTURING CO.

44 Dundaff St., Carbondale, Pa.

Pittsburgh: Koppers Building

New York: 30 Church St.

*"You Can't go wrong in a Day"*

IF YOU HAVE A CRUSHING OR GRINDING  
PROBLEM WRITE FOR INFORMATION ON  
'DAY' PATENT HAMMER-MILL CRUSHERS

DAY PULVERIZER CO., KNOXVILLE TENN.

### Fifty Years Experience Built into McLanahan Washing Machinery

Steel logs, cylinder washers, combined washing and scrubbing screens, built for thoroughly washing materials economically.

For over 50 years these machines have been built and sold by us for washing hematite, manganese and gold ores, phosphate rock, limestone, sand, gravel, peat, etc.

Crushers—Ore Jigs—Dryers—Elevators—Conveyors—Screens—Holsts, etc. Pit, Mine, Quarry and Industrial Equipment.

Write for catalogs and information.

McLanahan and Stone Machine Company

Continuously in business since 1836

Hollidaysburg, Pa.



Southern factories and railroads  
have installed Davis Tanks  
since 1888.

## DAVIS CYPRESS TANKS

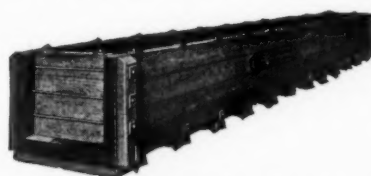
Every Davis  
Tank embodies the ac-  
cumulated technical skill of  
forty-two years of tank-building.

Just as cypress is without superior for invest-  
ment economy, so are Davis Tanks unsurpassed  
in material, method of construc-  
tion and reinforcing for service.  
A Davis water tank on a Davis  
steel tower, are plant purchases  
which have almost no limit of  
life and usefulness. Ask for new  
catalog of sizes and capacities.

G. M. DAVIS & SON  
P. O. Box 5, Palatka, Florida



## FOR PICKLING STEEL



### WOOLFORD WOOD TANKS

With special designed acid sealed joints are proving what  
we claim—the best that are made. 4", 6", 8" material, any  
length, width and depth. Shipped set up or K. D.

For over seventy years ex-  
clusive wood tank builders.

G. WOOLFORD WOOD TANK MFG. CO.

Factory—Darby, Pa.

Mail—Paschall P. O., Phila., Pa.

# DIRECTORY

ARCHITECTS

ENGINEERS

CHEMISTS

GEOLOGISTS

CHEMICAL ENGINEERS

ACCOUNTANTS

CONTRACTORS

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

**Leslie N. Boney**

Architect

Schools—Public Buildings

WILMINGTON, N. C.

**Milburn, Heister & Co.**

Architects

WASHINGTON, D. C.

**Wm. J. J. Chase, A. I. A.**

Architect

Public and Commercial Buildings

140 Peachtree St. ATLANTA, GA.

**Geo. Harwell Bond**

—A-I-A—

ARCHITECT

Candler Building ATLANTA, GEORGIA

**G. Lloyd Preacher & Co., Inc.**

Architects and Engineers

1204 Wynne Claghton Bldg.,

ATLANTA, GA.

**Chas. T. Main, Inc.**

Industrial Engineers

Mills, Warehouses, Complete Developments  
Electrical, Steam and Water Power  
Reports—Appraisals  
201 Devonshire St. BOSTON, MASS.**Claude H. Lindsley**

Architects

Member American Inst. of Architects  
JACKSON, MISS.**E. S. Draper**

Landscape Architect and Engineer

Fellow American Society of  
Landscape Architects1516 S. 4th St., CHARLOTTE, N. C.  
101 Marietta Bldg., ATLANTA, GA.**B. Russell Shaw Co.**

INCORPORATED

Consulting and Designing Engineers  
AIRPORTS—AIRLINES

Arcade Bldg., ST. LOUIS, MO.

**James D. Lacey & Co.**

Timberland Factors

Forest Engineering—Management  
Aerial Surveys—Timber Reports  
220 Madison Avenue, NEW YORK  
231 So. La Salle St. CHICAGO  
JACKSONVILLE — NEW ORLEANS**Airmap Corporation of America**Aerial Surveys and Maps  
Consultants and EngineersThe AIRMAP—The Engineer's Aerial  
Map for City Planning, Water  
Supply Studies, Zoning,  
Complete Aerial Tax Map Service  
42 Flatbush Extension BROOKLYN, N.Y.**Invicta Engineering Company**Research and Development  
Industrial Processes  
Mechanical InventionsCompetent engineering service to plants  
without engineering departments and  
to individuals requiring such service.  
P. O. Box 2494 BIRMINGHAM, ALA.**Ira G. Hedrick, Inc.**

Consulting Engineer

Designs, Supervision, Estimates, Bridges  
and Structural Work.  
HOT SPRINGS NAT'L PARK, ARK.**Wadleigh and Bailey**

Consulting Mining Engineers

Management, Investigation, Appraisal of  
Mining Properties.  
Fuel Consultants, Natural Resource  
Surveys  
One Broadway, NEW YORK, N. Y.  
Southern Bldg., WASHINGTON, D. C.**Charlton & Davis**

Civil Engineers

General Engineering Practice

Local Maps for Sale  
FORT LAUDERDALE, FLA.**E. T. Le Baron, C. P. A.**

General Practice.

314 Dyal-Upchurch Building  
JACKSONVILLE, FLORIDA**Elroy G. Smith**Consulting and Designing  
Civil-Hydraulic EngineerIndustrial Hydro-Electric Development  
a Specialty  
313-315-A Herald Bldg.,  
AUGUSTA, GA.**Consoer, Older & Quinlan, Inc.**

Mems. A. S. C. E.

Consulting Engineers

Water Supply—Sewerage—Industrial  
Engineering  
317 N. 11th St. ST. LOUIS, MO.  
205 W. Wacker Drive, CHICAGO, ILL.**Harza Engineering Co.**

Consulting Engineers

Dams, Hydraulic, Hydro-electric, Flood  
Control and Sanitary Projects  
20 N. Wacker Drive  
CHICAGO**J. E. Greiner & Company**

Consulting Engineers

Design, Construction, Investigation, Ad-  
visory Service—Bridges, Docks, Piers,  
Warehouses and other Engineering  
Structures.  
1201 St. Paul St. BALTIMORE, MD.**C. A. P. Turner**

Consulting Engineer

M. Am. Soc. C. E. Reinforced Concrete  
and Structural Steel Bridges, Buildings,  
and Manufacturing Plants.  
300 Builders Exchange Bldg.,  
MINNEAPOLIS, MINN.**Walter H. Wheeler**

M.A.S.C.E. and M.E.

Engineers

Mfg. Plants, Buildings, Bridges, Dams,  
1000 Met. Life Bldg.,  
MINNEAPOLIS, MINN.**Arthur L. Mullergren**

Consulting Engineer

POWER SPECIALIST

770 Board of Trade Building  
KANSAS CITY, MO.**Widmer Engineering Co.**

Industrial Engineers

ST. LOUIS, MO.

**Fuller & McClintock**

Engineers

170 Broadway, NEW YORK  
Penna. Bldg., 15th and Chestnut Sts.,  
PHILADELPHIA, PA.  
Walsix Bldg., 600 Walnut St.,  
KANSAS CITY, MO.**Charles H. Herty**

Industrial Consultant

Special attention given to the location  
and development of industries utilizing  
the natural resources of Southern States,  
especially as affected by Chemistry.  
101 Park Avenue, NEW YORK CITY**William S. Lee**Mem. Am. Soc. C. E.; Mem. Am. Soc.  
M. E.; Mem. Eng. Inst. Can.; Fellow  
Am. Inst. E. E.

Consulting Engineer

535 Fifth Ave., NEW YORK CITY  
CHARLOTTE, NORTH CAROLINA**MacElwee & Crandall, Inc.**Industrial and Civil Engineers  
Investigations, Reports, Design, Sur-  
vey—Port Development, Piers, Ter-  
minals, Airports, City Planning, Water  
Front, Reclamation, Industrial Surveys  
Main Office:  
134 Main Street, 11 West 42d Street  
CAMBRIDGE, MASS. NEW YORK CITY**Howerton Engineering Co.**

Consulting and Contracting Engineers

MUNICIPAL IMPROVEMENTS  
HIGHWAY IMPROVEMENTS  
Water Works, Sewer, Hard Surface  
Streets, Highways, Contracting Con-  
struction. ASHEVILLE, N. C.**Gilbert C. White Co.**

Consulting Engineers

Waterworks Paving  
Sewerage  
CHARLOTTE, N. C.  
DURHAM, N. C.**Morris Knowles, Inc.**

Engineers

Water Supply and Purification, Sewer-  
age and Sewage Disposal, Valuations,  
Laboratory, City Planning.  
PITTSBURGH, PA.**W. E. Biggs Engineering Co.**

Consulting Engineers

Power Plants and Industrial power ap-  
plications. Economic use of power and  
process steam.  
Heating and Ventilating  
Design—Supervision—Operation  
Holston Bank Bldg.,  
KNOXVILLE, TENN.**Gardner & Howe**

Structural Engineers

Steel and Reinforced Concrete Buildings,  
Bridges and Viaducts  
Porter Bldg., MEMPHIS TENN.  
Kirby Bldg., DALLAS, TEXAS**Freeland, Roberts & Co.**

Consulting Engineers

Concrete and Steel Structures  
NASHVILLE, TENN.**C. N. Harrub Engineering Co.**

Member Am. Soc. C. E.

Civil and Sanitary Engineers

Water Supply, Sewerage, Paving and  
Structural Improvements.  
705-9 Fourth & First Nat'l Bk. Bldg.  
NASHVILLE, TENN.**Engineering Service Corp.**

Consulting Engineers

Civil-Electrical-Mechanical-Refrigeration  
Cold and Dry Storage Warehouses  
DESIGNS  
Reports—Appraisals—Designs—Surveys  
Docks and Harbor Designs—Ind. Eng.  
Water Sup.—Sewer Sys.—Oil and Gas Lines  
HOUSTON, TEXAS, U. S. A.**Lee H. Williamson**

MEM. AM. SOC. C. E.

Consulting Engineer

CHARLOTTESVILLE, VA.

**Algernon Blair**

Contractor

MONTGOMERY, ALA.

**Hornbuckle Contracting Co.**

INCORPORATED

Municipal Improvements  
Industrial Village Utilities

ATLANTA, GA.

**S. P. Rees**

Contracting Engineer

Municipal—Industrial—Swimming Pool  
Gravity and Pressure Filter and  
Softening Plants

137 Huntington Road ATLANTA, GA.

**S. E. Huey**

Consulting Engineer

Natural Gas

Ouachita Bank Bldg. MONROE, LA.

**Kansas City Bridge Co.**Established 1893  
Builders of Railroad and  
Highway Bridges  
River Improvement Work  
General Office, 1012 Baltimore Ave.,  
KANSAS CITY, MO.**T. C. Thompson and Bros.**

Incorporated 1895

General Contractors and Builders  
BIRMINGHAM, ALA.  
CHARLOTTE, N. C.**Angle-Blackford Company**

General Contractors

GREENSBORO, N. C.

**Fiske Carter Construction Co.**

General Contractors

GREENVILLE, S. C.  
SPARTANBURG, S. C.**Poe Piping & Heating Co.**

Contractors

For Power Piping, Heating and  
Sprinkler System  
108 S. Main St. GREENVILLE, S. C.**Lee A. Gridley Construction Co.**

General Construction

CRANE SERVICE—FOUNDATIONS  
KNOXVILLE, TENN.FAMILIARIZE yourself  
with the SOUTH'S pro-  
gress by reading the MANU-  
FACTURERS RECORD.

**Steel & Lebby**

JOHN A. STEEL, JR.  
THOS. D. LEBBY  
Engineers and Constructors  
The design and erection of concrete and steel structures.  
Holston Bank Building  
KNOXVILLE, TENN.

**The Warner Service Company**

Electrical and Mechanical  
Contractors  
Cor. Clinch and Central Ave.  
KNOXVILLE, TENN.

**Charles W. Alpaugh & Sons**

Hydraulic and Construction Engineers  
Dams a Specialty: Investigations,  
Estimates Free.  
MANASSAS, VA.

**The John W. Cowper Co., Inc.**

General Contractors  
State Planters Bank Bldg.  
RICHMOND, VA.

**Floyd Jennings & Co., Inc.**

Plastering Contractors  
132 Cain St., N. E., ATLANTA, GA.

**Walker Electrical Company**

Electrical Contractors  
General Offices: ATLANTA, GA.  
Sales Offices:  
ATLANTA, GA. COLUMBUS, GA.  
GREENSBORO, N. C.

**Hoosier Engineering Co.**

Erectors of Transmission Lines and  
Substations  
100 W. Monroe St. CHICAGO, ILL.

**John Eichleay, Jr. Co.**

Steel Construction  
Structural Steel  
House Raising and Moving  
Shoring and Foundation Work  
South 20th & Wharton Sts.  
PITTSBURGH, PA.

**J. B. Converse & Co., Inc.**

Engineer  
Industrial Investigations, reports,  
plans, estimates, supervision.  
MOBILE, ALA.

**William Henry Harrison**

Engineer  
Tax Valuations, Commercial Appraisals,  
and Analytical Reports.  
Denrike Bldg. WASHINGTON, D. C.

**Wiedeman and Singleton, Inc.**

(Successors to Paul H. Norcross)  
Consulting Engineers  
WATER WORKS, SEWERS, SEWAGE DISPOSAL  
APPRAISALS, VALUATIONS, REPORTS  
Candler Building ATLANTA, GA.

**Hardaway Contracting Company**

Engineers Contractors  
Water Power Developments, Bridges  
COLUMBUS, GEORGIA.

**Batthey & Kipp**

Incorporated  
Consulting and Constructing Engineers  
Industrial Plants Power Plants  
Railroad Shops, Terminals and Electrification  
231 S. La Salle Street CHICAGO, ILL.

**The Picard Laboratories**

Chemists and Inspecting Engineers  
Inspection of Cast Iron Pipe, Structural  
Steel, Cement, Railroad Equipment, etc.  
Chemical Analysis of all kinds.  
Representation in all Principal Cities  
Clark Building, BIRMINGHAM, ALA.

**Conard & Buzby**

W. R. CONARD J. S. BUZBY  
Inspection and Tests of Materials of  
Engineering and Construction  
Reports, Designs, Supervision  
Construction  
BURLINGTON, N. J.

**Wiley & Company, Inc.**

Analytical and Consulting Chemists—  
Experts on Fertilizer Materials, Coal,  
Greases, Food, Drugs, Dairy Products,  
Chemical and Bacteriological Examinations  
of Water for Domestic and Manu-  
facturing Processes.  
Calvert and Read Sts. BALTO., MD.

**Dow & Smith**

A. W. Dow, Ph.D.; F. P. Smith, Ph.D.  
Mem. Am. Inst. Ch. Engrs.  
Mem. Am. Soc. Civ. Engrs.  
Chemical Engineers, Consulting Paving  
Engineers, Asphalts, Bitumens, Cement,  
Paving Materials  
131 East 23rd St. NEW YORK

**Stillman & Van Sicken, Inc.**

Chemists and Chemical Engineers  
Analysis and Inspection of Asphalt,  
Paving Materials, Cement, Concrete  
Building Materials.  
227 Front Street NEW YORK  
BEEKMAN 5261

**Barrow-Agee Laboratories, Inc.**

Chemists and Engineers  
Analysis tests and inspection of all  
building and construction materials.  
MEMPHIS, TENN.  
LITTLE ROCK, ARK.  
JACKSON, MISS. SHREVEPORT, LA.

**George B. Hills Co.**

Drainage, Docks and Terminals  
Suite 314 Liggett Bldg.  
JACKSONVILLE, FLA.

**Charleston Constructors, Inc.**

H. C. Chaves, Jr., President  
J. A. McCormack, Secy. & Treas.  
C. M. Trott, Engineer  
55 Broad Street  
Phone 3462 CHARLESTON, S. C.

**Mees & Mees**

Engineers and Industrial Architects  
202 Court Arcade.  
CHARLOTTE, NORTH CAROLINA

**J. V. & R. T. Burkes, Inc.**

MEMBER A. G. C.  
General Contractors  
NEW ORLEANS, LOUISIANA.

**The J. B. McCrary Company**

Engineers

ATLANTA

GEORGIA

MUNICIPAL IMPROVEMENTS

We design and construct Water-Works, Electric-light and Sewer Systems—Paving  
and Road Work.

**Byllesby Engineering & Management Corporation**

231 S. La Salle Street

CHICAGO

SAN FRANCISCO

**James W. Billingsley**

Consulting Engineers

Investigations—Plans—Specifications and Supervision  
Industrial Plants—Docks—Seawalls—Roads—Bridges and Municipal Work.  
NEW ORLEANS, LA.

**Spoon & Lewis**

Consulting Engineers

**Fay, Spofford & Thorndike**

Associates

Consulting Engineers

Water Works, Sewerage Works, Streets, Bridges, Industrial Plants,  
Highways, City and Land Development, Port Development, Harbor Works,  
Investigations—Designs—Supervision of Construction  
GREENSBORO, N. C. BOSTON, MASS.

**SANDERSON & PORTER**

ENGINEERS

FOR THE

FINANCING—REORGANIZATION—  
DESIGN—CONSTRUCTION

OF

INDUSTRIALS and PUBLIC UTILITIES

CHICAGO

NEW YORK

SAN FRANCISCO

**The J. G. White Engineering Corporation**

Engineers—Constructors

43 Exchange Place

NEW YORK

**Scofield Engineering Company**

Consulting Engineers

POWER AND INDUSTRIAL PLANTS AND PROCESSES.  
Design—Construction—Valuations.

Commercial Trust Bldg.,

PHILADELPHIA

**J. E. Serrine & Company**

Engineers

Factory Design: Hydro- and Steam-Electric Plants; Warehouses,  
Steam Utilization, Sewage Systems, Appraisals, Valuations, Reports.

General Offices: GREENVILLE, SOUTH CAROLINA

**Floyd & Lochridge**

Consulting Engineers

Hydraulic Investigations, Water Supply, Irrigation, Flood Control, Drainage  
Dams, and Power Development.  
Investigations for Financial Institutions.

Wilson Building

DALLAS, TEX.

**Wiley & Wilson**

Consulting Engineers

PLANS, SPECIFICATIONS AND SUPERVISIONS  
STEAM AND ELECTRIC POWER PLANTS  
STEAM HEATING AND VENTILATING SYSTEMS  
Complete Mechanical and Electrical Equipment for Public and Private Buildings  
and for Institutional Groups.  
MAIN OFFICE: LYNCHBURG, VA. BRANCH OFFICE: RICHMOND, VA.

**Tucker & Laxton**

Contracting Engineers

Filters, Concrete Work, Hydro-Electric and Steam Electric Construction.

CHARLOTTE, NORTH CAROLINA

**Ford, Bacon & Davis**

Incorporated

Engineers

39 Broadway, New York

Philadelphia

Chicago

San Francisco



### Lockwood Greene Engineers, Inc.

*Plans—Specifications—Reports—  
Appraisals—for Industrial Plants*

NEW YORK BOSTON CHICAGO CLEVELAND  
CHARLOTTE SPARTANBURG

### Cornell-Young Company

Incorporated

*General Contractors*

Railroads and Highways, Reinforced Concrete and Steam Shovel Work.  
104 Georgia Casualty Bldg. MACON, GEORGIA.

### Frederick Snare Corporation

*Contracting Engineers*

Difficult Foundations and Engineering Problems a Specialty

114 Liberty Street

New York

PHILADELPHIA

HAVANA

### Webb Electric Company

*Electrical Contractors*

Industrial, Commercial and Institutional  
Electrical Installations.

ANDERSON, S. C.

### Allen J. Saville, Inc.

ENGINEERING AND CONSTRUCTION

Electric Building

RICHMOND, VIRGINIA

### Dixie Electro Plating Co.

RUST PROOFING ENGINEERS AND CONTRACTORS  
UDYLITE PROCESS

PLANT CAPACITY PRACTICALLY UNLIMITED

217 Caroline Street

Office and Plant

HOUSTON, TEXAS

### B. Stanley Simmons, Inc. and Associates

A. I. A.

*Architects*

PUBLIC AND COMMERCIAL BUILDINGS

1315 H Street, N. W.

WASHINGTON, D. C.

NEW YORK OFFICE: Fifth Ave at 47th Street

### The Ballinger Company

*Architects Engineers Appraisers*

Commercial, Industrial and Institutional Buildings

PHILADELPHIA

NEW YORK

### Hollowell, Gorham & Company

*Auditors, Accountants, Industrial Engineers*

COST SYSTEMS—AUDITS—TAX SERVICE

Special Investigations for Consolidations, Reorganizations, etc.

GREENSBORO, N. C.

ROCKY MOUNT, N. C.

### Tilghman Moyer Company

*Bank Architects and Builders*

ALLENTOWN

PENNSYLVANIA

### Dame-Wolfe & Co.

INDUSTRIAL SURVEYS—FINANCING—  
MANAGEMENT

315 15th St., N. W.

WASHINGTON, D. C.

### Robert W. Hunt Company

ENGINEERS

*Inspection—Tests—Consultation*

22nd FLOOR INSURANCE EXCHANGE, CHICAGO

Laboratories and Offices in all Large Cities

### Walter H. Flood & Co.

*Chemical Engineers*

*Inspection and Tests*

Paving and Engineering Materials

Plant and street inspection on all types of pavements. Reports, specifications, consultation.

932 E. 44th St.,  
CHICAGO, ILL.

321 Daniel Building  
JACKSON, MISS.

### Pittsburgh Testing Laboratory

ANALYSIS INSPECTION TESTING RESEARCH

PITTSBURGH, PA.

Branch Offices in the Principal Cities

Established 1881

### Froehling and Robertson, Inc.

*Inspection Engineers and Chemists*

Inspection of Cement, Steel, Pipe, Timber, Brick, Tile  
Design and control of Asphalt and Concrete Mixture.  
Water Analysis a Specialty.

RICHMOND

NEW YORK CITY

### Southwestern Laboratories

*Chemical and Testing Engineers*

Inspection Steel and Cement for Bridges and Buildings. Crocoted Timber,  
Asphalt, Brick, Cast Iron Pipe, Railroad Equipment, Bituminous Pavement  
at Plant, Chemical Analyses, Etc. Representation at usual points of origin.

FORT WORTH

DALLAS

HOUSTON

AMARILLO

### Courtenay De Kalb

*Mining Engineer and Economic Geologist*

Reports on Mineral Products

Design and Advice on Treatment Plants for Ores and Non-Metallic Products  
15 Gramercy Park

NEW YORK, N. Y.

### Sprague & Henwood, Inc.

*Core and Wash Borings*

For Buildings, Bridges, Dams and all kinds of Minerals

Anywhere in the United States or Canada

Main Office

SCRANTON, PENNA.

### Mott Core Drilling Company

*Diamond Core Drill Contractors*

We Test Coal, Clays, and Mineral Properties, Foundation Testing, Dams,  
Bridges, Buildings, Wash Borings, Dry Samples.

MAIN OFFICE

HUNTINGTON, W. VA.

### W. E. Rowan

QUANTITY SURVEYS

215 Builders Building

CHARLOTTE, N. C.

**I**f you wish to keep posted on the  
progress of the South, read the  
MANUFACTURERS RECORD.

**SEAWALLS** WEBER SYSTEM  
MANY DIFFERENT TYPES TO MEET EVERY CONDITION.  
SAFEST AND MOST PERMANENT CONSTRUCTION.  
**ENORMOUS SAVING OF COST**  
FOR COMPLETE INFORMATION WRITE TO—  
**SHORE-LINE BUILDERS, INC.**  
JACKSONVILLE, FLORIDA.  
WEBER SYSTEM **BULKHEADS**



**WE LOOK INTO THE EARTH**  
By use of Diamond Core Drills  
We test foundations for buildings,  
bridges and dams. We prospect coal  
and mineral lands in any part of North  
and South America.  
**PENNSYLVANIA DRILLING CO.**  
1812 West Carson St., Pittsburgh, Pa.  
Drilling Contractors

**ANOTHER LARGE HIGHWAY BRIDGE**

over the

**OHIO RIVER**

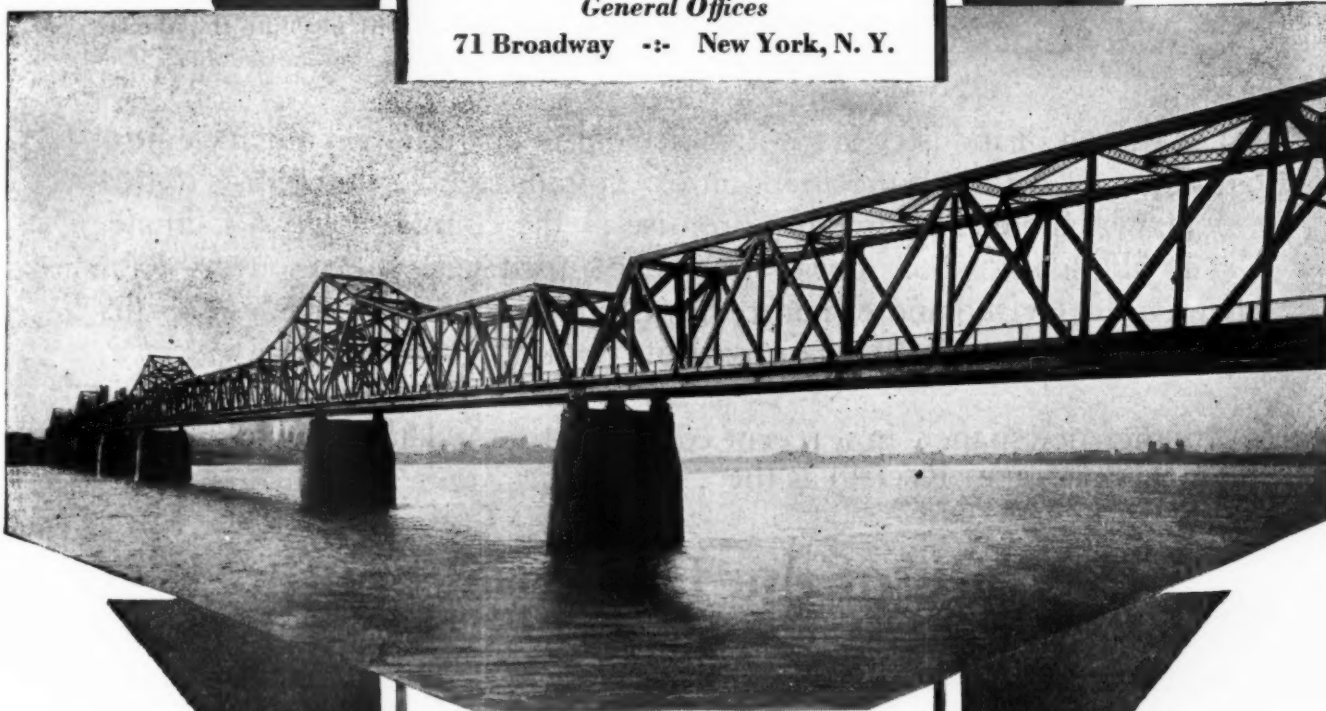
(Illustrated Below)

was opened to traffic the latter part of 1929. This bridge for the Louisville Bridge Commission, is 3740' long, connecting Louisville, Ky., and Jeffersonville, Indiana. The fabricated structural steel in the superstructure was furnished and erected by

**AMERICAN BRIDGE COMPANY**

*Subsidiary of*  
*United States Steel Corporation*

*General Offices*  
71 Broadway -:- New York, N. Y.



**RALPH MODJESKI   FRANK M. MASTERS**  
*Engineers*

This structure consists of two cantilever structures,—each made up of one anchor arm 362 feet, one anchor arm 500 feet, two cantilever arms each 224 feet, and one suspension span 373 feet,—and one simple span 373 feet, similar to suspension span; one roadway and two sidewalks.

We manufacture **STEEL STRUCTURES** of all classes, particularly

**BRIDGES and BUILDINGS****CONTRACTING OFFICES:**

NEW YORK   BOSTON   BALTIMORE   PHILADELPHIA   PITTSBURGH   CLEVELAND   CINCINNATI  
DETROIT   CHICAGO   ST. LOUIS   DULUTH   MINNEAPOLIS   SALT LAKE CITY   DENVER

**Pacific Coast Distributor:****Columbia Steel Company**

San Francisco, Calif.   Los Angeles, Calif.   Portland, Ore.  
Seattle, Wash.   Honolulu, T. H.

**Export Distributor:****United States Steel Products Company**

30 Church Street  
New York, N. Y.

**E**ACH weekly issue of the MANUFACTURERS RECORD is today prompting more favorable editorial comment in other publications than ever before in its fifty years of life.

A combination of factors is causing attention to be focused on the South to a marked degree. During the last ten years this section has made its most remarkable growth.

The gains in population in its industrial cities; the advance in the value and volume of its manufacturing; the expansion of its airlines, waterways and motor vehicle transportation facilities; the mammoth hydro-electric developments; the extension of oil and pipe lines over hitherto impossible distances, all with their starting point in the South, are a few of the things that indicate why absolute confidence is felt in the tremendous growth of the Southern states.

The march of industry is toward the South. Its resources and its opportunities are claiming the attention of capitalists and industrialists to this field, which offers the greatest promise in the country today. Climate, soil, abundant labor, cheap power, coupled with the resources with which the lavish hand of nature has endowed the South, account for its remarkable growth and its promising future.

Another newspaper, in a recent editorial, referred to the work of the MANUFACTURERS RECORD as the

**“Voice of the Industrial South”**

---

# Manufacturers RECORD

Established 1882

## The Davison Chemical Company

Manufacturers and Distributors of

All Grades of

**SULPHURIC ACID  
SUPERPHOSPHATE  
DOUBLE SUPERPHOSPHATE**

Main Plant, Baltimore: Pyrites Deposits Cienfuegos District, Cuba; Phosphate Rock Plant, Southern Phosphate Corporation, Bartow, Florida.

Fertilizer Plants: Maryland 11; Virginia 9; Pennsylvania 10; Georgia 2; Ohio 2; North Carolina 11; South Carolina, Mississippi, Louisiana, Texas, Indiana, West Virginia, Tennessee, Connecticut and New Jersey 1 each.

Main Office: Baltimore Trust Building, Baltimore

## CONTINENTAL GIN COMPANY

announces many new improvements in Cotton Ginning Machinery and Heavy Duty Oil Engines.

Write for Details

Address: 4600 4th Ave. So., Birmingham, Ala.



**CEMENT GUN CONSTRUCTION CO.**  
The Original  
**GUNITE**  
Contractors

Estimates and information cheerfully given  
537 So. Dearborn St., Chicago, Ill.  
Pittsburgh Branch New York Branch  
Oliver Bldg. Grand Central Terminal



# WEBER

introduced the Round System  
...eliminated unnecessary set  
screws...improved the head  
construction and now they  
bring you Drawing Instru-  
ments as light as

DURALUMIN  
AND STEEL

your pencil.



Inspect a set of these advanced instruments at your engineering supply store. F. Weber Co., Inc., 1220 Buttonwood St., Philadelphia. Branches: St. Louis and Baltimore.

## WEBER-DURAL

## Southern Textile Exposition . . .

Greenville, South Carolina

TEXTILE

HALL

OCTOBER

20th to 25th

1930



**M**ARVELOUS machinery, modern appliances and devices, and scientifically made mill supplies which will reduce manufacturing costs.

Every visitor will see the latest creations of the shops at the Southern Textile Exposition, October 20th to 25th.

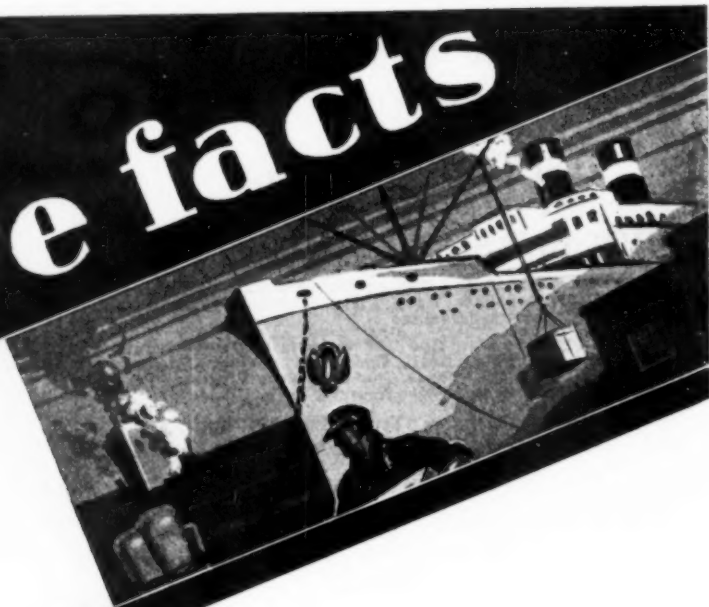
Cotton mill executives cannot afford to miss this show. Exhibitors are preparing instructive and most interesting displays.

Southern manufacturers keep step with the progress of cotton manufacturing in every branch through the Southern Textile Exposition. At intervals of two years manufacturers of textile machinery and supplies send their products of latest design, and their best mechanics to operate them. Their most skilled engineers and technicians come to demonstrate and explain. Every improved method of manufacturing and preparing goods for markets may be seen.

Write to us for a room reservation, or to your railroad agent in regard to special rates. Southern Railway will operate from Atlanta and from Greensboro, special Pullman cars, leaving about midnight, to be parked at Greenville the following day and returned that night. At Greenville passengers may leave luggage in cars.

... TEXTILE HALL CORPORATION ...

# Facts are facts



The fact that the Norfolk and Western Railway is the leading carrier of intercoastal freight moving via the Port of Norfolk (on world-famous Hampton Roads) is sufficient reason for an inquiry from any shipper or receiver of merchandise moving between the West Coast and the East or Central States.

The fact that there are some very real, not theoretical, transportation economies that may be effected by the use of this route and the N. & W. has proven to be ample reward for many inquiries.

Both facts are facts primarily because of the modern, adequate terminal and port facilities of the railway at Norfolk and its unexcelled services between the Port and the Mid-West.

A call or letter to the Foreign Freight Department at New York, Norfolk, Chicago, Cincinnati and San Francisco or to any representative of the railway in other key cities throughout the country will bring detailed information and courteous cooperation.

## Norfolk & Western Railway



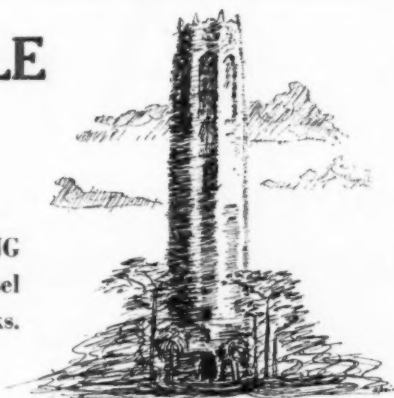
Roanoke  
Virginia

## JACKSONVILLE

## FLORIDA

## WHY

The BELLS for the BOK SINGING TOWER were transhipped from vessel to railway through Municipal Docks.



## WHY

The Valuation of Jacksonville's Waterborne Cargo has increased 20 fold in 13 years.

## BECAUSE

The Port of Jacksonville Offers—

## TO THE SHIPPER

Lower railroad rates from many principal points—freedom from port charges—ample pier space with free time for cargo in transit.

## TO THE STEAMSHIP COMPANY

Free dockage at Municipal and privately owned piers—modern equipment for cargo handling—in fact, every facility of a well ordered port.

## TO THE MANUFACTURER

POWER, from the Municipal Light Plant, in large quantities for industrial purposes, at less than 1c per kilowatt-hour net.

## THE CITY COMMISSION

Invites Correspondence

In


**St. Louis**
**Hotel Mayfair....**
*8th and St. Charles*

In the center of theatre and shopping districts. Floor lamps, fans, circulating ice water in every room. The quiet, refined atmosphere of an exclusive club—an hotel of distinction. Dining room. Coffee shop. Garage service.

400 ROOMS — \$3<sup>00</sup> to \$6<sup>00</sup>

**Hotel Lennox....**
*9th and Washington*

St. Louis' newest and smartest hotel opened September 3rd. In the heart of business district. Dining room. Coffee shop. Garage service.

400 Rooms with tub bath and shower — \$3<sup>00</sup> to \$6<sup>00</sup>

**Hotel Kings-Way...**
*West Pine at Kingshighway*

Opposite beautiful Forest Park. Near bus, street car and motor highways. 20 minutes from downtown. Club breakfasts, table d'hôte dinners. Rooms for two from \$4. Special rates for permanent guests.

**Heiss Hotel System KMOX**

## FLORIDA

*Vegetable Growers  
Benefit by*

## NEW TARIFF RATES

The increased rates protect our growers in their competition with foreign grown products.

Plans for the 1930-31 early vegetable crops should be made *now*.

In the trucking section of the lower East Coast of Florida the Model Land Company of the Flagler System has several thousand acres of vegetable land for sale or rent at reasonable prices.

*Write for information*

Address:

J. W. Hoffman, Vice-Pres.,

Model Land Co.—Flagler System

St. Augustine, Florida

*The late Henry M. Flagler and his organizations have served Florida since 1886.*

# ALABAMA

is one of the 19 states classified as "soft-water" states — that is, averaging less than 55 parts of calcium and magnesium per million. This statement refers particularly to water furnished by public supply systems in cities. It is borne out also by analyses of various wells and springs scattered throughout the state. Investigations have shown that this softness of water supply results in a saving of from 5 to 10 per cent in annual fuel bills in heating this non-scale water. To the housewife, a saving of soap, fabrics, and fixtures is noticeable.

This is an extract from a comprehensive survey of Alabama, made by the Alabama Industrial Development Board. Copies of this survey will be furnished responsible individuals upon request. Address: Alabama Industrial Development Board, Brown-Marx Building, Birmingham, Ala.

*This advertisement published through the courtesy of the Alabama Power Company, whose New Industries Division is actively cooperating with the Alabama Industrial Development Board in bringing new industries to Alabama.*

# TABLE OF CONTENTS

Baltimore, Md., August 28, 1930

## EDITORIALS

Doubt and Fear Impede Progress.....	Cover Page
Ample Electric Power During Drought.....	39
No Time to Raise Rail Rates.....	40
South as a Buyer in the Nation's Markets.....	40
Opportunity to Extend the Uses of Cotton.....	41
Consider Municipal Water Supplies.....	41
School Children Not for Sale.....	41

## NEWS and FEATURE ARTICLES

Manufacture of Building Materials From Farm and Forest Waste a Growing Southern Industry.....	By Carroll E. Williams	42
Important West Virginia Power Projects Under Way.....		46
Expansion as a Cure for Business Blues.....		46
Guaranty of Bank Deposits Discussed.....	By William Butterworth	47
Cellulose From Hybrid Poplars.....		48
Texas School Fund of \$28,000,000.....		48
Selection and Training of Foremen.....	By Robert Twells	49
Rapid Work on Texas Pipeline.....		49
The World's Largest Cotton Plantation.....		50
Front Royal Gets Water Supply Quickly.....		51
The Story of a Dime or How a Man Lost a Job.....		51
The New Industrial Revolution—Decentralization.....	By Gus W. Dyer	52
Building Motor Truck Bodies for Dry Ice.....		53
American Shipbuilding Development and Future of the Industry.....		54
55-Mile Pipeline for Natural Gas to Mississippi Communities.....		55
Air Transportation and the Southwest.....	By R. W. Ireland	59

## SPECIAL DEPARTMENTS

*Construction, New Industries and Contracts, 15 Pages Beginning on Page 62*

Iron, Steel and Metal Market.....	56	Machinery, Proposals and Supplies Wanted...	75
Highways and Motor Transport.....	58	Industrial News of Interest.....	76
Aviation, Airports and Airways.....	59	Trade Literature .....	82
New and Improved Equipment.....	61	Financial News .....	82

*Classified Reference for Buyers.....* 94

*Alphabetical Index to Advertisers.....* 105

## MANUFACTURERS RECORD

RICHARD H. EDMONDS, Editor

Published Every Thursday  
by the

MANUFACTURERS RECORD  
PUBLISHING CO.

MAIN OFFICE  
Manufacturers Record Building,  
Commerce and Water Streets,  
Baltimore, Md.

BRANCH OFFICES  
Chicago—11 S. LaSalle St.  
New York—901 Singer Bldg.

Subscription Rates: \$6.50 a year (in advance); six months, \$3.50; three months, \$2.00 to United States, Mexico, Cuba, Porto Rico, Hawaii and the Philippines. For Canada add postage \$1.00 a year. For other foreign countries add postage \$3.50 a year.

PUBLISHERS DAILY CONSTRUCTION BULLETIN AND BLUE BOOK OF SOUTHERN PROGRESS  
Member A.B.C.

## Goldens' Foundry & Machine Co.

COLUMBUS, GEORGIA

MANUFACTURERS OF

MACHINE MOULDED PULLEYS  
HANGERS                      SHAFTING

Couplings, Pillow Blocks, Floor Stands, Collars, etc.

Send for Price List and Discount Sheet

## LESCHEN AERIAL TRAMWAYS



are economical carriers because

- they are correctly designed
- they are sturdily built
- they are not affected by weather conditions
- maintenance and operating costs are low

Made in different systems

Your inquiries are solicited

Established 1857

### A. LESCHEN & SONS ROPE COMPANY

5909 Kennerly Ave., ST. LOUIS

New York

Chicago

Denver

San Francisco

## LEADITE

Trade Mark Registered U.S. Pat. Office

For Jointing Cast-Iron Water Mains  
Saves at Least 75%

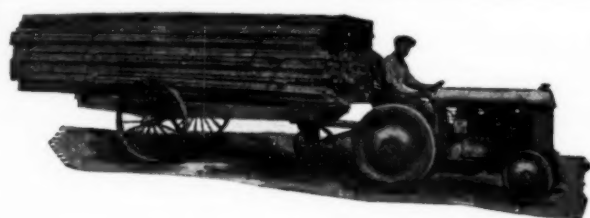
Leadite Tested and Used for Over 30 Years

Leadite Joints Improve with Age

The Leadite Co., Land Title Bldg., Philadelphia, Pa.

"See our Full Page Ad in 2nd issue each month"

## No Caulking



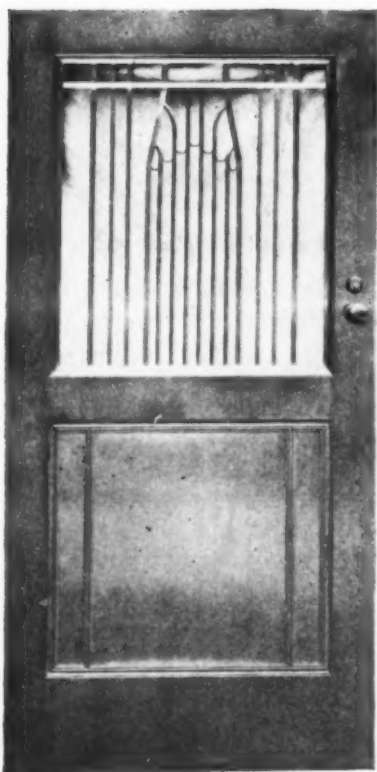
## Big Loads on Electric Trailers

A type for every service. Used by the largest mills, small mills, lumber yards, railroads, industrial plants—wherever lumber is moved.

Also made to order for special requirements. Roller bearing steel wheels, axles, lumber buggies, wagons, trucks. Ask for catalogs.

Electric Wheel Co.,

5 Ohio Street  
QUINCY, ILL.



## MICHAELS

CRAFTED

CORK  
FILLED

## WELDED

## BRONZE DOORS

OUR MASTER CRAFTSMEN

AND

OUR PRIDE ENABLES US

TO CLAIM THE BEST

THE

## MICHAELS ART BRONZE

CO.

236-240 COURT AVE.

COVINGTON, KY.

# Manufacturers Record

Reg. U. S. Pat. Office

Devoted to the Upbuilding of the Nation Through the Development  
of the South and Southwest as the Nation's Greatest Material Asset

Vol. XCVIII No. 9  
Weekly

BALTIMORE, AUGUST 28, 1930

{ Single Copies, 20 Cents.  
\$6.50 a Year.

## Ample Electric Power During Drought

**T**HROUGH the keen foresight of the electric power companies in the South, the streams of current which operate alike huge machinery in great plants and the little churn on the modest farm have flowed throughout this section without interruption by the drought with which parts of the South have been afflicted, in common with other great areas of the country.

"I am happy to say that there has been no adverse effect, such as curtailment of power service to the public, and I am confident that there will be no such adverse effect," President P. S. Arkwright of the Georgia Power Company reports to the MANUFACTURERS RECORD.

"We have experienced no shortage of power, by reason of our large capacity in steam-electric generating stations," writes A. G. Whidden for the Arkansas Power & Light Company.

Southern industrial activity and domestic comfort have been protected by the power companies through two methods: Conservation of water in times of abundant rain through great impounding basins supplying great hydro-electric stations, and the provision of steam electric-generating plants to take up any burden which a reduced water supply may not be able to carry. Here not only coal enters the picture in steam generation, but coke, lignite, gas and oil do their part.

As supplementary power and to meet emergencies, the power companies have installed steam plants as a second-line battery. "This assures a constant and dependable supply of power, together with economical operation of the various facilities," Mr. Arkwright explains, and also: "As further protection against drought, the hydro-electric developments have been located on several different watersheds."

Furthermore, through inter-connections practically the whole electric power industry of the South can be brought into one super-power system, assuring service to those lines affected by local conditions.

To the South, this policy may be said in general to mean insurance of the full supply of 21,584,000,000 kilowatt-hours a year, as demanded in 1929, the latest available figures. For several years past, the South's demand has increased at the rate of 2,000,000,000 kilowatt-hours a year, until at the opening of 1929 the

power companies were compelled to develop 3,780,550 horsepower capacity. Hydro-electric development in the South has been nearly double that in the rest of the country for the last ten years.

Of 3359 public utility and miscellaneous water-power plants of over 100 horsepower in the United States on January 1 of this year, the South showed 414, or 12.3 per cent; of 1591 public utility plants in that group, the South had 238, or virtually 15 per cent. To 12,141,846 horsepower developed by public utility plants, the South contributed 3,756,505, or 30.9 per cent.

Electric power production by public utilities in 1929 ran to 97,283,270,000 kilowatt-hours for the United States, of which 21,584,090,000, or 22 per cent, was in the South; of that nationwide total, 34,603,852,000 kilowatt-hours was generated by waterpower, of which 9,507,402,000, or 27.4 per cent, was in the South, and 62,679,418,000 by fuel with the South showing 12,076,688,000, or 19.2 per cent. The South's percentage as generated by waterpower is thus shown to be higher than its percentage in the nation's mixed aggregate, and its percentage generated by fuel to be lower, in the same comparison.

In the ultimate analysis, these comparisons indicate the major importance of the hydro-electric plants to the South, and the necessity for reinforcing them with fuel plants, in case of drought or other emergency. These needs and demands the power companies of the South are meeting, and these emergency reinforcements they are providing.

More than incidentally, the power companies in some cases are expanding the impounding of water into a phase of flood prevention or control. In his letter to the MANUFACTURERS RECORD, for example, Mr. Whidden says:

"When the Carpenter hydro-electric station now under construction on the Ouachita River is completed, our storage there will be greatly increased, and with the completion of the third dam on the Ouachita we shall be able to take care of all normal precipitation in the drainage area above Rammel. This will serve to some extent to prevent floods from the area above Rammel and maintain a better flow in the Ouachita River throughout the year."

In many instances, without question, impounding basins or storage reservoirs for surplus water might well be located at strategic points, with flood prevention or control almost as prominently in mind as the

conservation of power-water. The Arkansas Power & Light Company and possibly some others have demonstrated the practicability of the idea, and general practice of the policy, where possible, would develop composite insurance against both drought and flood losses.

Although the South is shown by figures to be primarily a hydro-electric section, in contrast with the country as a whole, it is well that the power companies in this area appreciate in full the tremendous importance of fuel as either a reinforcement or a substitute.

Early in August, the Alabama Power Company made ready to put the 80,000-horsepower unit of its Gorgas No. 2 steam plant into operation. Preparations for emergency calls were made at three other units at Gorgas No. 1 plant, which total 100,000 horsepower, and operation of other steam units was to be started if necessary. Nearly 150,000 tons of coal was then in storage at the Gorgas plants, sufficient for 166 days of operation at No. 2 at 900 tons a day; for 100 days at No. 1 at 1500 tons a day, and 62 days for both at 2400 tons a day.

The foresightedness of the electric power companies here mentioned is typical of all such companies in the South, and the business acumen in this industry is indicative of that alert spirit in which the entire South meets emergencies, and takes advantage of opportunities for development.

### No Time to Raise Rail Rates

**P**ROTEST by the Brown Paper Mill Company, Monroe, La., against a suggested advance in rail freight rates on pulpboard, fibreboard, liner, etc., may well be expanded from an individual item of interest to a principle of wide general importance. This is not the time for increases in railroad freight rates nor the rates in other lines of transportation.

Objection, by either an industry or the purchasing public, to such increases is not only in the nature of self-defense, but also of protection to the rail carriers, which relatively are experiencing the same abatement of business as other industries are undergoing. The imposition of unduly high freight rates will almost automatically turn much business to truck lines, and business once diverted from the rails to the highways is not always easy to regain.

In fact, one of the outstanding business executives of the country, one who has played an important part in development of the South, recently made the suggestion to a representative of the MANUFACTURERS RECORD that Southern railroads should reduce short haul rates and thus help to build up the industrial South.

As one of the outstanding factors in American development and prosperity, railroad transportation is entitled to every support and proper consideration, but on the other hand the carriers must not jeopardize such support by imposing rates which are higher than "the traffic will stand."

### The South As a Buyer in the Nation's Markets

**F**ORTUNATE conditions by reason of which the South has felt the recent business depression less than any other section have stimulated the interest of industry and business of the North and West in this area. The South is viewed as already forging ahead and as actually and potentially able to finance its purchasing needs.

In its position as the foremost agricultural area, the South attracts the attention of many and varied lines of business. The fertilizer interests survey the 79,000,000 acres of improved lands, and the farm power machinery and other machinery and implement trades see opportunity for large sales of tractors and other mechanical devices for cultivation of those acres and the gathering of their crops. Thousands of miles of fencing are required for the fields, farm buildings of various kinds are continuously in demand, while the farmer seeks also modern conveniences of every kind—automobiles, radios and other articles for the family's comfort and pleasure.

Approximately 250 varieties of industry, of conspicuous importance in the number of each one's plants and value of products, attract the attention of great concerns which design and erect factories, install waterpower machinery, provide equipment of every kind, and parts for replacement and repairs. Distributors of cranes and plumbing and standpipes and tanks note the thousands of opportunities for business in the South and are ready to grasp them. More than 40,000 manufacturing plants already established in the South, with no limit to the prospect, spending more than \$6,000,000,000 a year for materials, fuel and power, are exercising a tremendous attraction for business.

Reports from investing circles in the North state that hundreds of millions of dollars are begging for work, at low interest rates, to supplement the sums of investment money in the vaults of Southern banks. The situation is an incentive to purchases of every kind. Present low prices will not prevail forever, money will not continue permanently cheap, and the South's advantage in the agricultural and industrial revival will not be ignored. For years, the South has been a heavy customer of industries in other parts of the country, and now it assumes a place of outstanding prominence in the national trade estimation, in order to meet its ever-growing requirements.

As viewed by other sections, the South with its 40,000,000 people possesses its full proportionate share of the nation's dollars. As the South sees it, the purchasing power of these dollars has increased substantially in recent months.

As computed by Ethelbert Stewart, commissioner of labor statistics in the Department of Labor, the purchasing power of the retail, or "home," dollar, applied to foodstuffs, is about \$1.056 compared with a year ago, and the same figure is generally applicable to articles of every kind. The other way around, a man now buys a \$1000 article for virtually \$950. This may seem a comparatively small saving, but in

aggregate Southern purchases running into nine or ten figures it amounts to a total which commands respect.

Road building, alone, in the South for this year is estimated at \$560,000,000, much of which must be spent for machinery and materials of all description in that particular line. The 3,500,000 farms in the South, more than 50 per cent of the country's total, require numerous mechanical devices, largely of the power type. More than \$540,000,000 in construction contracts, exclusive of roads, paving and bridges, were awarded in the South last year and indicate the proportions of that activity in this section. The railroad building program amounts to \$200,000,000 and more for the South, this year, and unnumbered other industries will swell the construction and equipment account.

### An Opportunity to Extend the Uses of Cotton

**I**N a general search for new uses for cotton, the fact needs to be emphasized that substitution of American cotton bags and bagging for foreign jute would create a market estimated around 1,500,000 additional bales of cotton a year. Ninety million yards of cotton cloth would be required, as wrapping for the bales of the Southern cotton crop, while the cement industry, and sugar, grain and other shipments in cotton bagging would require more millions.

As the MANUFACTURERS RECORD long has pointed out and the Fort Worth Star-Telegram again repeats, the higher price for cotton bagging over jute would be more than counterbalanced by the rise in the price per pound which the grower should receive following development of the new demand. While cotton bagging would cost about 25 cents a bale more than jute, it is estimated that a demand for 500,000 bales additional would raise the price of cotton \$5 a bale, and if cotton farmers can spend 25 cents and get back \$5, it is a good business proposition.

Indication that some growers have grasped this idea develops in Ashley county, Arkansas, where farmers are reported to have instituted at least a local movement to urge a general demand for cotton bagging instead of jute. The movement should spread rapidly throughout the South, not alone in cotton growing and cotton textile circles, but also in the many industries which approximately fit into it.

Under the present Tariff law, bags or sacks of unbleached jute are taxed at 1 cent a pound and 10 per cent ad valorem, while unbleached and uncolored jute for cotton bagging is rated at three-tenths of 1 cent a yard. Under the law, the Tariff Commission might recommend advances for the bags and sacks to 1½ cents a pound and 15 per cent ad valorem, and jute for bagging to nine-twentieths of a cent a yard, but no more in either case. Adequate protection against foreign jute and jute bagging through tariff amendment may not well be expected.

The cotton growers and ginneries have a partial remedy for the situation in their own hands.

### Consider Municipal Water Supplies

**O**NE lesson many communities have learned from the recent drought is that they have been taking a rather long chance against failure of their water supply. Municipal authorities in many places have been aware of the situation confronting them and of the danger they faced in not preparing for an adequate supply of water. If they are wise they will not wait until threatened by another drought before they actively begin work. Close study of the situation should be made and immediate preparation of plans undertaken to meet the need.

It is true that recent weather conditions were almost unprecedented and this may perhaps cause a sense of false security and a postponement of developing plans for enlarging municipal water supplies. It is providential there were not terrific losses due to conflagrations, which could not be stopped because of lack of water, or that serious epidemics did not develop. Every community which found itself threatened with a water shortage should leave not a stone unturned to increase its storage facilities.

At this time when public improvements are needed to stimulate employment, municipal authorities could not do a more beneficial work, with advantage to themselves in securing low construction prices and to their people in creating additional employment, than to enlarge the water supply.

And this applies also to the individual dependent on his private source of water supply. Now is the time to dig that well deeper, or dig a new well, or to enlarge water storage facilities.

### School Children Not For Sale

**P**ROPOSED Government intrusion in the educational systems of the individual States assumes a new form in a plan evolved by the educational advisory commission named by President Hoover to aid Secretary Wilbur to devise a method for "extending aid" to schools.

In effect, the plan proposes to estimate in each state the number of children of school age and on the basis of average daily attendance to give each State \$2.50 a year for each pupil. The money would be disbursed by state authorities on condition that it be "impartially applied" and under such other stipulations as the Government from time to time might devise and impose.

In the light of open day, the movement is a variation of the main effort to place the schools of the Nation under the control and, in time, the authority and management of the Federal Government. The old line of attack, through creation of a "department of education," will be pushed, say Washington news dispatches, in the next session of Congress.

Heretofore, the advocates of Government control of education have relied on sentimental argument to persuade the people. Now, a cash consideration is suggested. Patriotic citizens are likely to doubt that the States will surrender the welfare of their children.

# Manufacture of Building Materials From Farm and Forest Waste a Growing Southern Industry

Storage Piles of Bagasse.

Baling stations are located at the sugar mills, and during the short grinding season sufficient raw material must be accumulated for the year's production at the Celotex plant where the 250-pound bales are piled until needed.



Research Figures Prominently in Development of Processes of Manufacture and in Determining Diversity of Uses for Newly-Created Products.

By

CARROLL E. WILLIAMS

UTILIZATION of farm and forest wastes as basic raw material for manufacturing processes has attracted much attention in recent years. As a result of extensive research, a number of major industrial plants have been established in the states from Maryland to Texas for production of building and insulating material by converting waste into boards, in a fraction of the time required by nature. One plant is turning out daily over 2,000,000 square feet of insulating and building board from bagasse—the fiber of sugar cane after the juice has been extracted—heretofore used by some mills only for fuel. Another plant is manufacturing products with similar properties, using wheat straw as a base. Three plants, each using distinctly different processes are turning sawdust, chips, mill and wood-working plant waste, second growth timber and spentwood remaining after naval stores have been extracted, into structural and insulating board.

In development of these industrial enterprises the research chemist and engineer have played important roles. Past accomplishments offer but a hint of possible future developments for utilization of waste products of factories and farms.

More than ever the lumber industry in the South is getting on a self-perpetuating basis. The subject of trees as an agricultural crop is receiving special attention. Big-capacity mills to be supplied with logs over a period of many years through the growing of timber on

an intensive scale, and through selected cutting and by utilization of scientific reforestation methods have been established. The paper industry which consumes large quantities of mill waste and second growth timber and the refuse of lumbering operations is concentrating in the South. Softwood and hardwood consuming industries, turning out a variety of products, are locating near the mills. A step further along comes the establishment of plants for production of building and insulating boards. To the South's abundant natural resources, the forest has been one of the longest and steadiest contributors. If one may judge from the attention the industry is now receiving, its future development will be of even greater significance in the growth and prosperity of the section.

Abundance of suitable raw materials, availability of comparatively cheap electric power from inter-connected systems, and favorable climatic, labor, taxation, legislative and transportation conditions are among factors making for concentration in the South of plants for production of insulating materials, building board, sound control material, plaster and stucco bases and products of like character for which a multitude of uses are being developed. An idea of the size of such plants, the big investments entailed and the very elaborate manufacturing processes which have been developed to a high state of efficiency is afforded by the following descriptive details of five such plants now operating in the South.

## \$6,000,000 Invested in New Orleans Celotex Plant

ORGANIZED IN JULY, 1920, to manufacture a structural insulating board from bagasse, the Celotex Company has had a steadily expanding business. During its last fiscal year more than 333,000,000 square feet of products were marketed, net sales totaling over \$10,317,000 after deductions of freight, allowances and discounts. At its \$6,000,000 plant at Marrero, La., across the Mississippi from New Orleans, the company now manufactures a variety of products, including: Structural insulating board, a combined building insulation and plaster base, sound control material, roof insulation, a refrigerator car insulating material and a linoleum base.

The industry's first requirement was a fibre, specially suited to the contemplated product and available in large quantities. Various fibres were tested before bagasse was selected as the best raw material. From the manufacturing angle cane fibre has, it is said, the advantages of length, strength, resistance to decay, purity, springiness and bulk. It also is available in large quantities; the costs of growing, harvesting, removing leaves and other non-fibrous tissue, milling and washing are borne by the sugar industry; large tonnages are concentrated at Louisiana mills with rail or water outlets; the fibre must be used up; its maximum value is that of low grade fuel.

The first problem was transportation of bagasse from mill to plant. Engineers promptly developed a baling machine to handle 100 tons of bagasse every 24 hours. This type of baler produced a bale weighing 250 pounds; its strength has since been increased and its operation made semi-automatic.

With transportation solved, a plant was built and operation started in August, 1921. In 1922 approximately 18,000,000 square feet of products were manufactured. Demand increased rapidly and two new units were added in 1923, and still another in 1924, making four in all, comprising Plant No. 1. Demand still exceeded production, and in 1926 a second plant was built, and fifth and sixth board-making machines installed. In 1929 the seventh machine was added. The two plants now have a production capacity of over 2,000,000 square feet daily.

The succession of operations that converts bagasse into building materials is an illustration of modern industrial efficiency. Baling stations are located at the sugar mills. Because of the short grinding season, which averages about 75 days, it is necessary to store enough raw material during this period for a year's production. As the bagasse is baled, big cranes pile it at baling stations and at the Celotex plant.

Before bagasse is fed to the conveyors leading into the plants the bales are broken open. The loose bagasse is conveyed to huge cookers which remove foreign substances. The fibre is then washed and refined. Care must be taken to provide a proper proportion of long fibre to weave and entangle and felt

the material together; a proportion of coarse fibre to give porosity, lightness and insulating value, and a proportion of fine fibre to fill in between these two and give surface. All these operations are carried out in water and steam, completely sterilizing the fibres.

The sterilized fibres are fed onto mould rolls covered with fine copper wire screen. Here the greater part of the water is drained out and the fibres thoroughly entangled and matted together into a felt. When the fibre comes from the mould rolls it is still very wet, and it is passed through a series of heavy rolls to squeeze out as much water as practicable. All operations are continuous, the machine turning out a board 12½ feet wide at the rate of 15 to 20 feet a minute. Ingenious automatic devices insure uniform thickness. From the rolls the board is carried on a conveyor through a drying oven. In Plant No. 1 there are two ovens, each 800 feet long and with conveyors for two boards. In Plant No. 2, the single oven is 1000 feet long and has three conveyors. The speed of the conveyors and the temperature are so regulated that the board is thoroughly dried when delivered at the oven outlet. From the oven the conveyor passes the board to a cutting machine which trims edges and cuts the board lengthwise into three sections, four feet wide and then, without halting the forward movement, cross-cuts the sections into desired lengths.

One of every eleven employees at the Celotex mills is engaged in inspection and control. When the board passes from the cutting machine it is tested

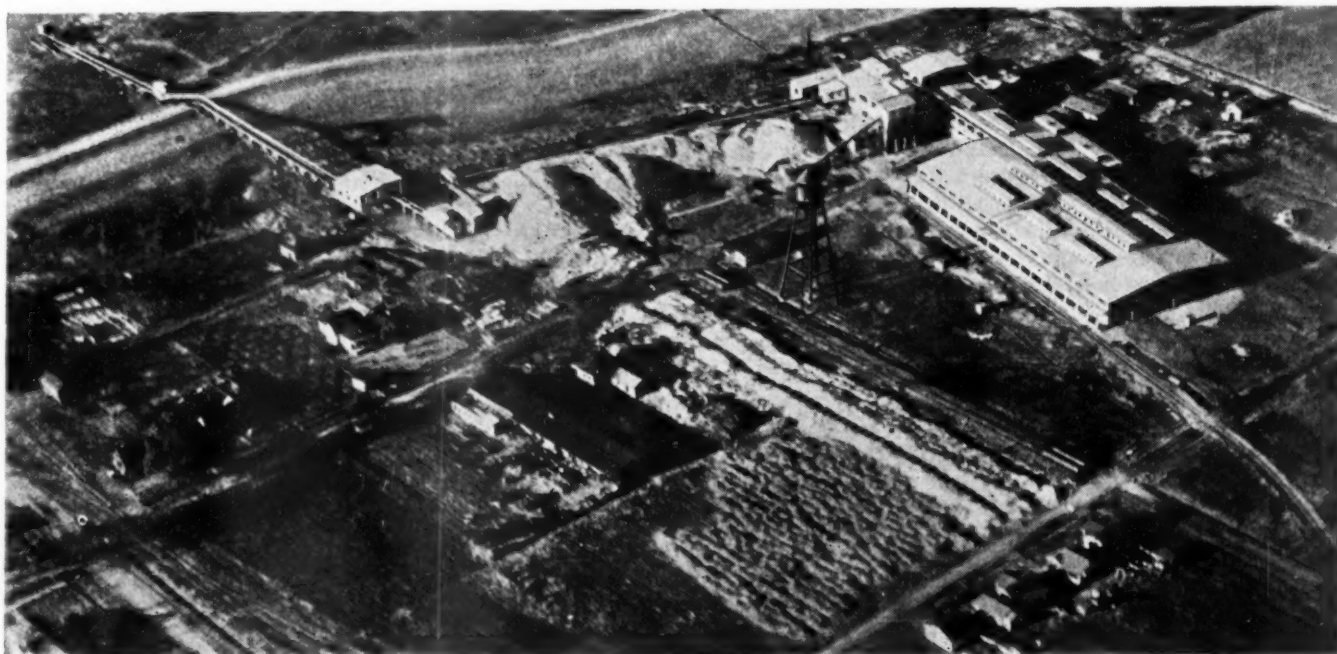
carefully for color, density, thickness, strength and other properties. Any material variation means rejection. Boards that meet this test are labeled and passed into the control of the production department for shipment. Rejected boards may be resubmitted by the production department under a lower classification or returned to bagasse conveyors to go through the process again. Less than six hours elapse between the breaking open of the bale and final inspection and approval of the finished product. Thus, within a year, the raw material is grown and the Celotex is manufactured and marketed. Compare this with the 25 to 50 years required to grow most varieties of trees suitable for cutting into lumber.

### *Sawmill Waste Raw Material for \$3,000,000 Plant in Mississippi*

THE MASONITE CORPORATION, formerly the Mason Fiber Company, has had in operation for several years a plant at Laurel, Miss., for production of building board from sawmill waste. Present output of the plant is 550,000 square feet of products daily, employees numbering 400. The plant represents an investment of around \$3,000,000.

Saturated steam at high temperature and pressure explodes the wood waste and converts it into wood pulp of long fibers encrusted with the original wood lignins for conversion into hard boards and insulating material. The steam explosion process is almost instantaneous. At present there are half a dozen "guns" at the plant. About 200 pounds of green chips comprise a charge. The valve is

Aerial Views of Plant at Greenville, Miss., Owned by Chicago Mill and Lumber Corporation, in Which a New Insulating Board, Weatherwood, Is Being Produced.



closed, and for 10 to 15 seconds the chips are steamed at low pressure to soften the lignins of the wood. Then for a period of three to five seconds steam at 1000 pounds pressure is turned on, before the chips are blown from the gun at a velocity of about 4000 feet a second to the stock chest. It is said that with this process there is no noticeable deterioration of either the cellulose or lignin, and a big saving in time and cost is effected over usual chemical pulp processes.

Water is added in the stock chest so that the moss-like fibers can be drawn out to the refiners, which are somewhat similar to a jordan in principle. The

on mill waste, the "guns" are capable of handling forest waste quite as easily.

#### ***New \$1,000,000 Plant Will Consume Spentwood After Naval Stores Are Extracted***

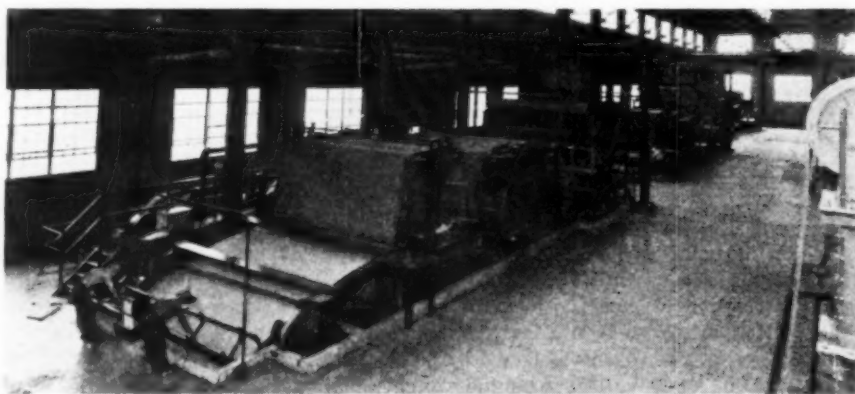
THE ARMSTRONG-NEWPORT COMPANY, organized by the Newport Company, Pensacola, Fla., and the Armstrong Cork & Insulation Company, Lancaster, Pa., is completing a board mill to be operated in connection with the naval stores plant of the Newport Company at Pensacola. This unit uses as its raw material the spentwood remaining after naval stores have been ex-

#### ***Making Southern Hardwood Waste Into Boards at Greenville, Miss., Plant***

PRODUCTION OF WEATHERWOOD, a new insulating board, has been started at the Chicago Mill and Lumber Corporation's plant at Greenville, Miss., first shipments having been made in the early part of July. This product is made of the fiber of Southern hardwood brought in by the company's logging forces from holdings in the vicinity of Greenville. Some of the waste from a mill located near by also is utilized.

In the manufacturing process no pres-

Board-making machine at Celotex Company's Plant at Marrero, La. This is the machine on which fibers are felted into board form. Two complete plants called for an investment of \$6,000,000.



The succession of operations that converts sugar cane waste into building materials is continuous. A board 12½ feet wide is turned out at the rate of 15 to 20 feet a minute.

refined stock then passes to the press rolls, where a sheet of fibre about two inches thick is formed. Rollers then reduce it to about three-quarters of an inch in thickness. The sheet is automatically cut into desired lengths and is fed by a triple feed to rack before it is placed in a press. Each press comprises 21 steam-heated platens. Wet sheets are drawn in between the platens on wire-cloth and the press closed. Each press is capable of exerting a pressure of 2000 tons. In making insulation board seven-sixteenths of an inch in thickness, the material remains in the press about 50 minutes. In producing "presdwood," one-eighth of an inch thick, material is held in the presses about 25 minutes. Each press turns out about 1000 square feet of material at a charge. Boards are passed into the empty rack and are ready for the market, except for cooling, inspection and trimming.

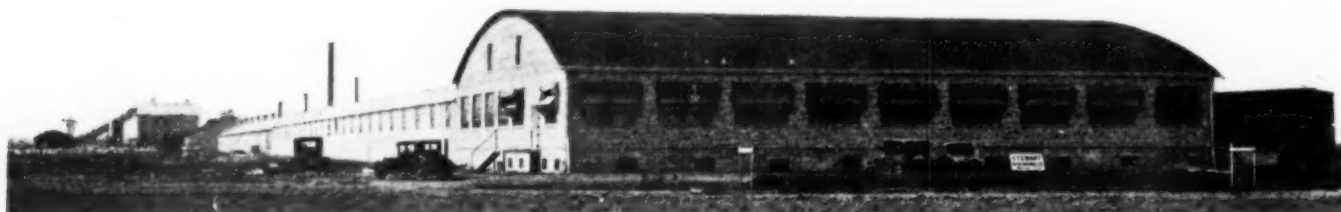
While the plant operates principally

tracted. Raw material for the naval stores plant is the stump and waste wood remaining on cutover lands after long leaf yellow pine lumbering operations. This wood is shipped into the naval stores plant in carloads and hogged and shredded to make it suitable for naval stores extraction. The fiber of the wood is not affected in this extraction, the wood being left in suitable condition for pulping operations in the board plant.

The spentwood is carried by conveyors from the naval stores plant to the insulation board plant, where it goes through various stages of the pulping operation and is formed into an insulation board. The wet sheet passes through a long dryer, and after being sawed into proper sizes is ready for distribution. Cost of the insulation board plant is approximately \$1,000,000. It will have a production capacity of approximately 100,000 board feet daily. Main building is 960 feet long and 75 feet wide.

sure is applied from the time the watery pulp mass is created until the finished item is turned out. Instead, a special system of drying by steam heat is used. The hardwood base for the board is chipped into small pieces, then mixed with water and chemicals which separates and cleanses the fibers. When the mixture has reached a certain stage it is poured onto a revolving cylindrical screen which removes a large amount of the water and carries the moist fibrous mass through a forming machine to a gas-fired apparatus that removes the remaining moisture through evaporation. The ultimate product is a firm, strong and smooth board.

Southern hardwood used as a raw material is logged from the woods in the river bottom of the district near Greenville, and the company says the supply seems inexhaustible. The river lands on which it is cut yield nothing else of commercial value on account of yearly floods which wash away farm



General View of Plant of Stewart Inso-Board Co., at St. Joseph, Mo.

crops. Growth per year of the hardwood is unusually fast because of the rich, moist soil deposits left by the frequently rising waters. Also, much of the waste left over from the making of fine hardwood and wooden shipping containers can be utilized by the board plant. The new program is expected to be another step in profitable salvaging of waste materials and the utilization of undesirable species that can be logged along with other trees without much additional expense.

The Chicago Mill and Lumber Corporation has plants and timber holdings in Arkansas, Mississippi and Louisiana. Woodworking operations are located in Memphis, Tenn.; Pine Bluff, Helena and Blytheville, Ark.; Tallulah, Alexandria, Waterproof and Darnel, La.; Vicksburg and Greenville, Miss.; and Cairo and Chicago, Ill. The original business was established in 1881. Through a series of acquisitions and expansions it has grown to be what is described as the largest hardwood lumber operator in the Southern field.

#### ***Straw Converted Into Building Board in Missouri Plant***

IN LATE YEARS the use of farm waste as raw material for manufacture has been given study. Cereal straws, with wheat straw as perhaps the most important, are available in great quantities in many states. A new venture in utilization of farm-waste was the construction of a plant in 1927 at St. Joseph, Mo., for the Stewart Inso-Board Company to produce insulating board from straw. In the first year of operations about 30,000 tons of straw were

converted into a product with properties similar in many respects to materials of like character made from wood waste or bagasse.

The raw material is delivered to the mills in bales. These are taken from the accumulated piles as needed, cut open and the straw dumped on a vibrating conveyor, where the wheat that remains is recovered and salvaged and the fine chaff and dust are removed. Delivery is then made by conveyors to a machine which cuts the straw into pieces averaging 4 to 6 inches long. The cut straw is moved to the digester house and en route passes under a shower of water. It is then placed in globe rotary digesters, each with a capacity of 7 tons of straw. About 1000 pounds of water are added to each charge, the digesters are sealed and for approximately eight hours a steam pressure of 60 to 75 pounds is maintained. Following the digestion period the steam is blown off into water to recover the heat, the liquor resulting from breaking down of the straw is drained off, and the cooked straw is dumped on drag chains which deliver it to the seasoning room where it remains for four days to a week.

Seasoned straw is taken from the bottom of the pile by drag chains to a hopper feeding a swing-hammer shredder. The disintegrated material leaving this mill passes over a magnetic separator to remove any foreign metallic substance. Water is added and the mixture passes through pulp grinders from which it is delivered to highspeed beaters by means of centrifugal "stuff" pumps. At this point, more water, alum

and resin size are mixed with the straw. After remaining in the beaters about 45 minutes the pulp is pumped to large storage chests, from where it passes through Jordans and there undergoes a final severe cutting action. It passes next through the machine "stuff" chest, which continuously supplies the forming machines.

Old newspaper is added to the straw pulp to produce the required amount of fine aggregate in the finished pulp. This paper is repulped and refined in separate beaters and Jordans before being added to the straw pulp. Ultimately it is proposed to use straw sawdust and scrap produced in the board-trimming department to replace all or a part of the paper.

The finished board is formed on a cylinder machine, similar to machines ordinarily used for manufacture of thin straw board for containers. The board so formed is carried through a series of press rolls in which the water is removed by steadily increasing pressure. The wet board is trimmed as it leaves the rolls and passes into the dryer, 900 feet long, heated direct by hot gases from fuel oil burners placed in external furnaces at intervals along the dryer. A temperature of 400 degrees F. is maintained. The board moves through the dryer at the rate of about 8 feet a minute. As it leaves the dryer it is sprayed with a concentrated liquor from the digesters which contains furfural and resinous substances derived from the original straw. This serves as a preservative and as additional binder for the surface straw fibers, and assists in moisture-proofing the board.

#### **Power and Mechanical Engineering Show**

Preparations are under way for the ninth National Exposition of Power and Mechanical Engineering, to be held December 1 to 6, at the Grand Central Palace, New York. "Business conditions in general are such as to make a show at this time of more than usual value," the management asserts, and a large attendance is anticipated, especially as the National Power Show will not be held in 1931.

Progress of the industries involved will be indicated in exhibits of equipment which enable electric and public utility plants to burn 7,112,739 tons of coal in pulverized form each year, and in the development of boiler pressure from 300 or 400 pounds to 1400 pounds. Stoking devices which handle much of the 42,000,000 tons of coal burned annually in public utilities plants will be shown, also underfeed stokers. The

variety of equipment of all kinds and the types of various devices are expected to be more numerous than in any previous show.

More than 400 exhibitors are said already to have taken space, in contrast with 105 who participated in the first exposition.

#### **140 Paint and Varnish Plants in South**

Paint and varnish factories in the South total 140. This figure includes plants producing colors and pigments, paints in oils, ready-mixed paints, water paints, kalsomines, stains, fillers, putty, varnishes, japans and lacquers, and is divided by States thus: 6, Alabama; 5, Florida; 10, Georgia; 22, Kentucky; 9, Louisiana; 20, Maryland; 44, Missouri; 2, North Carolina; 3, Oklahoma; 1, South Carolina; 13, Tennessee; 11, Texas; 8, Virginia, and 6 in West Virginia.

#### **Cotton Stationery a New Fabric Use**

Cotton cloth as letter "paper" for correspondence is a new and interesting use to which this textile fabric has been put by William G. Sirrine, president of the Textile Hall Corporation, Greenville, S. C., indicating that the uses for cotton are as wide as human ingenuity may be able to devise.

On this unique stationery, Mr. Sirrine suggests that prospective exhibitors at the Southern Textile Exposition, next October, "find some application of cotton fabrics to his display, such, for instance, as cotton belting, loom straps and other appliances adaptable to things shown" in the booths. His own concern, he adds, will use cotton cloths for signs, and "cotton rugs and draperies will be suitable for decorative purposes." The print on Mr. Sirrine's cotton fabric "paper" is clean and clear, and the page weighs no more than other stationery.

## Important West Virginia Power Projects Under Way

Union Carbide and Carbon Corporation Building Plants of 200,000 Horsepower to Supply Chemical Plants With Power

Hawk's Nest, W. Va.—Through subsidiary companies, the Union Carbide and Carbon Corp., New York, is building two new power projects in West Virginia for an installed capacity of approximately 200,000 horsepower, the output to be utilized by a proposed plant at Boncar, W. Va., of the Electro Metallurgical Co., also a subsidiary of the Union Carbide and Carbon Corp. The New-Kanawha Power Company is building a hydro-electric power plant on the New River, between Hawk's Nest and Gauley Junction, to consist of a dam across the river, an intake, power tunnel, surge tank, steel penstocks and power house. The dam will be about 826 feet long between abutments and will raise the water of the river approximately 60 feet above low stage at the dam. From the pool above the dam, water will be diverted into penstocks by an intake and tunnel, the latter being about 16,250 feet long and 30 feet in diameter. An intermediate surge basin will be provided about mid-length of the tunnel and at its lower end there will be a large surge tank. Penstocks will connect with hydraulic turbines and power stations. The power house will contain four units of 35,000 horsepower each and from the power house a transmission line will extend to the industrial plant at Boncar, a distance of six miles, where a connec-

tion will be made with a proposed steam-electric power plant. It is estimated that an average of more than 80,000 horsepower will be delivered to the Boncar industrial plant from the hydro-electric station. Rinehart & Dennis, Inc., Charlottesville, Va., are handling the construction of the dam, tunnel and power house and the entire development is expected to be ready for operation by March 13, 1932.

The steam electric plant is being built on the Kanawha River, adjacent to the site of the industrial plant at Boncar, by the West Virginia Hydro-Electric Co. It will consist of two steam turbo-generator units, each of 22,500-kilowatts capacity, and is expected to be completed by July 1, 1931. Design and construction are being handled by Ford, Bacon & Davis, Inc., New York. O. M. Jones, Glen Ferris, W. Va., chief engineer of the New-Kanawha Power Co., is in charge of machinery installations for L. H. Davis, New York, vice-president of the New-Kanawha Power Co. and the West Virginia Hydro-Electric Co. E. H. Mangan is the resident engineer in charge of the industrial plant installation for H. L. Noyes, Niagara Falls, N. Y., chief engineer of the Electro Metallurgical Co. Contract for the construction of the first block of industrial plant buildings has been awarded to H. B. Agsten & Sons, Charleston, W. Va. The hydro-electric and steam

electric plants will provide an average combined annual output of approximately 120,000 horsepower.

### \$750,000 Missouri Reformatory

Jefferson City, Mo.—Ground has been broken at Algoa, near Jefferson City, for a new \$750,000 state intermediate reformatory. William B. Ittner, Inc., St. Louis, is the architect and work is under the supervision of Dan Dean, a representative of the Ittner office. Frank B. Jones is the director of the Department of Penal Institutions.

### Rivers and Harbors Congress

Preparations for the twenty-sixth convention of the National Rivers and Harbors Congress, to be held at Washington, December 9-10, are reported by S. A. Thompson, secretary, to be well under way. Interest will be added to the convention by the enactment of the Rivers and Harbors law in the recent session of Congress, and several important subjects will be brought up for discussion.

### Expansion as a Cure for Business Blues

Expansion and development of business and industrial operations as a curative for economic depression is advocated by Wiley L. Moore, president of the Wofford Oil Company of Georgia and president of the Georgia State Chamber of Commerce. Instead of drifting, Mr. Moore believes in swimming upstream.

Instead of joining in a general curtailment of business and in reduction of salaries and wages in the depression of 1914, Mr. Moore realized that it was "more important to the general welfare of the country to keep the workers working than to stop the wheels of industry" and take money out of circulation. Backed by his bank, he carried out a business expansion movement, and in 1921 he followed the same course.

"So far, in the present lull," Mr. Moore says, "we have not laid off one person of our force and there has not been a penny reduction in salaries, and I am very happy to say that through expansion our business to date shows an actual increase of 10 per cent over the same period in 1929."

The Wofford Oil Company is said to employ 3000 persons, with a payroll of \$7,200,000 a year, and Mr. Moore also is active in the management of 23 other business concerns, capitalized at from \$50,000 to \$1,000,000. All of these have put his policy into practice.



Ground breaking ceremony at Hawk's Nest, West Virginia, as steam shovel turned the first bucketful of earth in the Union Carbide and Carbon Corporation's hydro-electric power development.

# Guaranty of Bank Deposits

## A Discussion of the Experiment and of the Defects Which Apparently Are Inherent in Any Such Method of Insurance

[Having had some correspondence of a personal nature with Mr. Butterworth on the subject of guaranty of bank deposits, the editor of the MANUFACTURERS RECORD prevailed on him to set down some of his observations. It is to be understood that Mr. Butterworth herein expresses his individual views and in no wise endeavors to discuss any relevant position of the Chamber of Commerce of the United States, of which he is president, or to commit it for or against any particular proposal relating to bank insolvencies.—Editor MANUFACTURERS RECORD.]

By

WILLIAM BUTTERWORTH,  
President,  
Chamber of Commerce of the  
United States of America.

**D**URING the year ending December 31, 1929, 642 banks in this country, with aggregate deposits of \$235,000,000, became insolvent. During the past decade there have been nearly 5000 bank failures, with total liabilities in excess of \$1,500,000,000.

All of this amount was not sacrificed by bank depositors or other creditors, as most of the insolvent banks closed with some assets. The losses, however, plus the disturbances which follow bank failures, have been sufficient to renew inquiries as to whether such failures are avoidable, or whether some system cannot be devised whereby depositors can be adequately protected, as, for instance, by a form of guaranty or insurance.

The idea of a system of state guaranty of bank deposits is not new. In Congress, also, in connection with the earlier drafts of the Federal Reserve Act, various guaranty proposals were reviewed and since then bills on the subject have been introduced at a number of sessions. In essence, the central idea of such effort appears to be that the principle of insurance should be applicable to protection of bank depositors. It is clear, however, that the theoretical concept of insurance is one thing and its practical application is another, as is apparent when we consider insurance in connection with unemployment, old-age pensions, crops, etc.

Nearly 30 years ago, during a period of business depression and bank failures, systems of guaranty of bank deposits received serious attention in a number of States, particularly in the West. Oklahoma, then just admitted to the Union, led off in 1907 with an act which provided for a levy on all state banks, to be paid into a fund to be used to reimburse losses to depositors in cases of insolvency. Actuated in part by what appeared then to be the inherent value of the scheme, but to a considerable extent also by the fear that the Oklahoma banks with their guaranteed deposits would offer increasing competition, several neighboring

States also enacted guaranty deposit laws.

Eventually, eight States, mainly in the Missouri Valley, entered upon the experiment. Details of their systems varied somewhat, but all had the common objective of insurance of depositors against losses in case of insolvency and all built up guaranty funds by special levy on the state chartered banks within their respective borders.

Every State but one has repealed its deposit guaranty law, in most cases leaving a deficit which many of the creditors of the funds claim the States are morally, if not legally, bound to assume. In the one State where the guaranty law has not been repealed, there have been serious difficulties. Its plan, if it may be considered operative, has been continued largely in name after complete remodeling. No attempt by a State to guarantee bank deposits has been a success.

To some observers, however, these state experiments apparently are not conclusive. While some admit that possibly the theory of guaranty of bank deposits is inherently unsound or impossible of practical administration by public agencies, there are others who appear to believe that the method used by those States was defective, or the area and number of banks embraced within a single State was too limited to permit of success, or that there have been other external factors which primarily caused the failure of the systems. It is a fact that the deposit guaranty broke down because of the excessive number of bank failures, with their resulting losses to be recouped from the guaranty fund. These funds were unable to stand the strain upon them, particularly after the depression of 1921.

Whatever may be advocated as a plan

to reimburse depositors of failed banks, a much deeper question is whether the number of bank failures can be reduced. Studies which have been made of bank insolvencies bring out enlightening facts.

It is well known that the great majority of such insolvencies are of banks with small capital. In the eight-year period, 1921-1928, 63 per cent of the banks failing had a capital of \$25,000 or less, and 88 per cent had a capital of \$100,000 or less. From some of these studies, it is becoming apparent that there is a direct connection between the size of banks, their profits and their solvency records. Generally speaking, the banks with the larger deposits not only have the best earnings, but also the fewest failures. While there are many medium-size and small institutions with satisfactory records, and while there is no optimum size for banks, it is inescapable that the bulk of insolvencies has been among the smallest institutions.

Small communities whose business will not justify a bank with large resources obviously should not be deprived of banking facilities. Many of them appear to be in need of the association of such facilities with a bank or banks of ample capital, substantial earnings and proved capacity of management, in order to minimize the risk of loss to depositors. Conclusions too positive in character, however, should not be drawn from statistics. The bank is a part of the business community it serves. If that community is prosperous, this will be reflected in the condition of any efficiently conducted bank and, conversely, if the community is depressed the condition of a bank will reflect that situation. The depression in many agricultural communities in recent years has been a contributory cause to the preponderant number of bank failures which have occurred in such areas. It is precisely in these regions that the greatest number of banks with small capital are located, and it is mainly in regions of this kind that the bank de-

posit guaranty scheme has been tried.

To reduce bank failures, there are many who believe that main reliance should be placed not upon public requirements of reserve, public examinations or public supervision, but upon the development by the banking profession of higher standards of banking and more skilled personnel, aided, perhaps, by some structural changes in our banking system. There are countries which have no required reserves or periodical public examination or rigid public supervision, in which the solvency records are superior to ours.

The insolvency record of the member institutions of our great Federal Reserve System has not been conspicuously better than that of non-member banks. While consideration has been given to universal membership in the Federal Reserve System, compulsory federal examination of all banks, the required centralization of reserves, and similar proposals designed to improve the quality of public supervision, many conservative observers appear to agree that, no matter how capable the Reserve System supervision or whatever the form of public supervision that might be adopted, banking must be so much a matter of individual judgment that outside supervision cannot insure good operation. A corollary to this is that a guaranty system may allow the negligent or incompetent to saddle the burden upon the more careful. Through clearing house examination and the development of various forms of voluntary regulation, improvements have been introduced, mainly in the direction of better bank management.

In the banking field we appear to

have a clear example of the conflict of two great and important American principles. It is the American idea that there should be the greatest possible freedom of individual initiative. In the main, most people support that. In the banking field this appears to have led to grant of bank charters to people who ought never to have been permitted to engage in the banking business, and this in turn has led to the other typical American demand for regulatory forms of law and public agencies of supervision. These have not placed the burden of raising the standards of business squarely upon the shoulders of the persons engaged in it, but upon the public legislatures and administrators who, in a business as intricate as banking, hardly can be looked to as a primary source for developing the professional standards and conduct which would be the best guarantee against bank failures.

Each State has a complete banking code, providing for periodic examinations and regulating many of the operations of the banks which it charters. The Federal Government has a system of supervision applicable to national banks. The Federal Reserve System also exercises supervision over its members, which include all national and some state banks. That state regulation and examinations do not prevent bank failures is indicated by the unfortunate fact that during the past decade over 4000 state banks, with liabilities of about \$1,200,000,000, have failed. National banks have a somewhat better record, though it is a question whether this is due to Government supervision of a superior type or to the fact that most such national banks are more heavily capitalized and many of them

located in communities where there is a greater diversification of business. Yet even the record of national banks or, as stated, member banks of the Federal Reserve System, is not such as to lead one to place too much faith in the present forms of government regulation as a means of reducing bank failures.

If the guaranty of bank deposits—attractive in theory though it may be—cannot overcome the inherent defect of placing a premium on inefficiency and penalizing good management, it would seem that little can be looked for in that quarter. If an inefficient but honest banker or one of a more speculative or less scrupulous type of mind can carry on operations, secure in the knowledge that since depositors will lose nothing the operators can largely escape censure when a collapse occurs, the public has no real protection. And if a careful, skillful banker who refuses doubtful loans or other dubious opportunities for immediate temporary profits is called upon through the operation of a guaranty fund to make good the losses incurred by his less skillful or less honest colleague, while not in a position to protect his institution against the other's methods, the system would seem to be an uncertain guide toward real progress.

If, on the other hand, through the development within the banking profession itself of higher standards of banking and of more skilled personnel, the present unfortunate number of bank failures is reduced, some comprehensive method then may be found of assuring protection for depositors, or, better still, the necessity for any plan of insurance or guaranty will disappear.

### Cellulose From Hybrid Poplars

After asserting recently that man, deprived of other materials, could almost live on cellulose and its products, Professor Ralph H. McKee, of Columbia University, discussed recent investigations in the cellulose field, including possible making of artificial wool, and a product to make textile products more useful to the consumer.

As to sources of cellulose, Dr. McKee said that for cotton the yield per acre-year is 150 pounds of cellulose; for flax-straw, 100 pounds, and for cornstalks nearly 500 pounds, while well-managed reforestation plantations of pulpwood using wild species will produce about 2000 pounds of cellulose per acre-year.

From new hybrid poplar plantations, Dr. McKee estimated 80 cords of pulpwood per acre would be realized in 12 years, an average of 16,000 pounds of merchantable wood per acre-year or the

equivalent of 8000 pounds of cellulose per acre-year.

Several reasons have been found by Dr. McKee for advocating the use of hybrid poplars for reforestation.

### \$1,283,000 Construction in Florida County

Orlando, Fla.—According to Karl Lehmann, secretary of the Orange County Chamber of Commerce, a total of \$1,283,150 worth of construction and improvements is under way in Orange County, of which the largest single item is the construction of a State road from Plymouth to Orlando at a cost of \$400,000. More than \$250,000 is being expended to build and equip new citrus packing plants and improve and enlarge existing ones, while new construction of varied character under way in Orlando will involve a cost of more than \$240,000.

### Texas School Fund of \$28,000,000

Austin, Tex.—State school funds available for the next session will approximate \$28,000,000, according to estimates of the State Board of Education, equivalent to \$17.50 for each child, which is the maximum permitted by the statutes. There will be a net cash balance on hand September 1 of \$2,004,188, it is estimated, with a special income of \$14,008,567 and a net income from taxes of \$11,895,141.

### \$453,000 Low Bid on Officers' Quarters

Fort Bragg, N. C.—Low bid to erect 48 structures here for officers' quarters has been submitted by C. V. York, Raleigh, N. C., at \$453,000, according to a tabulation of bids by Capt. Lawrence L. Simpson, Constructing Quartermaster.

# Selection and Training of Foremen

By ROBERT TWELLS, Assistant Superintendent, Champion Porcelain Company, Detroit, Mich., a subsidiary of the Champion Spark Plug Company.

THE importance of the foreman to an organization can hardly be over-emphasized. On him rests the final responsibility for "getting things done," and done rightly. Through him alone the ideas and policies of the management can reach the workers, and their attitude toward the company and its product is largely determined by their feeling towards him. The foreman also represents the workers and he must be ready, if necessary, to assert their rights to the management.

A good foreman usually has the natural qualities of energy, initiative, tact, leadership, enthusiasm, patience, loyalty, coolness in emergencies, ease of expression, ability to learn quickly and to teach others. He must have character to command the respect of those above him, as well as those below him; he must understand the care and maintenance of his equipment, and know better than anyone else the work of his department and the way to produce it. Someone has said that good foremen are born and not made and this is undoubtedly true. It is, however, possible to do much through training the right men and giving them opportunities to develop their latent abilities.

When a vacancy occurs among the plant foremen, it is late to select and train the successor. Experimenting at this stage is dangerous; it means a poorly managed department for some time and in case of failure time wasted in training the wrong man. Often in such emergencies some doubtful prospect is given a trial. This sometimes means spoiling a good workman; for, a man having proved unsatisfactory as a foreman is seldom of any further use to a company, even in his former job. Nor is it desirable to pick a foreman from outside the plant, or sometimes even the department. Almost every worker thinks that he would make a foreman and feels slighted if he is not given an opportunity; unfortunately, the majority of the workers are totally unsuited to be foremen, although they themselves do not realize it.

As a general policy, foremen should be selected from the ranks. If the quality of material necessary is not present in the ranks, a special effort should be made to put it there. It is always possible to place several promising men where they will have the opportunity

to learn the work by doing it. One successful executive deliberately takes stock of his workmen at intervals and lets the poorest one go. His place is then filled by another and presumably better man.

Education is becoming more and more necessary among the foremen. The old "slave-driver" type is fast vanishing and in its place is coming the trained specialist, who can lead rather than drive. In general, the best prospects for foremen have a high school education or its equivalent. These will have a sufficient foundation on which to start their specialized training. On the other hand, a college education, from a company's standpoint, is of doubtful value in a foreman. Promotion above the rank of foreman is necessarily slow and a college-trained man tends to get dissatisfied under these conditions, until his work suffers or he finds another job. The college-trained man has demonstrated his value in industry for research work, engineering, design, sales, or plant management. By all means, he should start in the ranks and learn the practical phases of the work. In a few years, he will have worked into the position for which he is best suited and will be all the better for his intimate knowledge of the plant.

Methods of training prospective foremen and executives differ widely. Large companies often establish schools for this purpose. Some companies hire outside concerns which specialize in this work to train their foremen. In small plants, an hour or two a week devoted to lectures might be well worthwhile. These would need to be simple, interesting and directly applicable to the work being done. Most foremen are eager to learn the technical phases of their work and they can readily be taught to make simple tests of a somewhat technical nature, and to use these as tools to control the uniformity of their operations. It is often surprising to find how little one foreman knows about the work of the rest of the plant. This is usually due not to lack of interest, but to a fear of "butting in" on the other foreman's department.

Misunderstandings between foremen are often the result of each being ignorant of the other's work. At one company, the foremen and others are conducted through the plant at intervals. Talks are given in each department, explaining its operation and its relation to the plant as a whole. Fore-

men and prospective foremen also should be encouraged to improve themselves by attending night school, taking correspondence courses and by reading trade journals. In many cases, trade journals may be furnished by the company and passed about the plant. Some men are much interested in these and derive a wider outlook than they could in any one plant.

Each foreman should be encouraged to develop an understudy. Sometimes, a foreman objects and he has to be convinced that this is an advantage to him as well as to the company. The foreman is then "first in line for promotion, because he has developed an assistant who is qualified to take his place," which is an appealing argument. The understudy gets practical experience by working in the department and managerial experience when the regular foreman is sick or on a vacation. These trial periods give the management a thorough test of the prospective foreman's capacity long before he is needed regularly. At the same time, the man's co-workers learn his ability and come to feel that he is the best of their number.

The foreman's job is a big one in itself, one worthy of his best efforts as a life study. A company should recognize the fact that each foreman is a trained specialist in the work of his department and give him a salary and privileges commensurate with his real importance.

## Rapid Work on Texas Pipeline

Eagle Pass, Tex.—Beginning work late in July, the Texas Gas Utilities Co., a subsidiary of the Appalachian Gas Corp., New York, has completed the Rycade field-Eagle Pass gas pipeline, which traverses the \$6,000,000 Maverick County irrigation project and extends to the middle of the International Bridge. Completion of the line marks the final step in the second section of the company's main pipeline construction program and establishes a record of rapid construction. The first section—the Rycade field-Devil's River line—about 63 miles long, was completed in a little more than 60 days. A distribution system is nearing completion at Eagle Pass and distribution systems at Crystal City and Carrizo Springs and extensions in the Winter Garden section will soon be started.

Abstract of a paper presented before the Management Division of the American Ceramic Society at Toronto, Ontario.

## The World's Largest Cotton Plantation

(From the Staple Cotton Review, Greenville, Miss.)

The largest cotton plantation in the world has its headquarters at Scott, Miss., in the Yazoo Mississippi Delta. It is locally known as "The Syndicate," its corporate title being The Delta and Pine Land Company of Mississippi. The president, Mr. Oscar Johnston, is a director of the Staple Cotton Association which handles all cotton produced by the company. At our request Mr. Johnston has given us the following sketch of this unusual cotton enterprise, for the benefit of our readers.

The Delta and Pine Land Company of Mississippi owns and operates a plantation at Scott, in Bolivar County. The plantation consists of approximately thirty-five thousand acres, of which some 22,000 are in a high state of cultivation, the remaining acreage, approximately 13,000 acres, consisting of woods land, pastures, roads, canals, ditches, bayous, house sites and town sites.

Of the cultivated land, the company plants approximately 14,000 acres in cotton and 8,000 to feedstuff, corn, alfalfa, oats, mellilotus or sweet clover, soy beans, sagrain, etc. It is the policy of this company to grow its own feedstuff. During the years 1928 and 1929 the company has found it necessary to buy a small quantity of grain, corn and oats, but has offset this by the sale of a sufficient quantity of alfalfa hay to pay for grain purchased. In 1929 the company gathered more than 60,000 bushels of corn and harvested around 2,500 tons of alfalfa. The oat crop threshed around 40 bushels of sound feed oats per acre. From the 14,000 acres of cotton land planted in 1929, the company has gathered a crop of 13,300 bales, averaging 500 pounds each, and on this date still has a small amount of cotton to be picked and ginned, indicating a crop averaging approximately 475 pounds of lint cotton per acre for the total acreage planted.

The management of this company attributes the very high yield per acre realized on this property to a number of causes, including the following:

- (1) Very great care in selection of the land planted to cotton, planting only those cuts or tracts regarded as safe, sure cotton producing lands.
- (2) Selection of the best and most prolific varieties of seed to be obtained on the market.
- (3) Liberal use of nitrogen, carefully put down in quantities indicated by the particular tract on which it is used.
- (4) Regulating the cotton acreage to accord with the quantity of labor, maintaining a ratio of not more than six

acres of cotton to each able-bodied worker.

(5) Careful preparation of the soil before planting, followed by intensive cultivation until picking is begun; weather permitting, the cotton is plowed once a week.

(6) Use of best mules and implements to be obtained.

(7) Personal supervision over health of the labor and sanitary conditions, in an effort to obtain maximum efficiency.

(8) Exercise of every effort to procure active cooperation of every force and agency on the property to achieve maximum production.

The foregoing elements, combined and operating under the general management of Mr. J. W. Fox, one of the world's foremost authorities in the matter of cotton production, assisted by a corps of carefully selected unit managers, all working together for a common end, has resulted in a production far exceeding the normal production of the Mississippi delta. For example, in 1925 the company produced an average of 406 pounds of lint cotton per acre; in 1926, the average was 396 pounds; in 1928, the average was 419 pounds; in 1929, 475 pounds. The goal set for 1930 is 500 pounds. In 1927, because of the overflow, no cotton was planted.

This company represents an investment of more than \$3,000,000, gives employment to approximately one hundred white officers and employees, who reside upon the plantation, and provides homes for approximately one thousand negro tenant families.

To facilitate operation of this gigantic organization, the operation is divided into departments, each under supervision and management of a superintendent who reports directly to the president of the organization. These departments are: production; auditing; merchandising; live stock; public health and hygiene; mechanical; maintenance and construction.

**Department of Production:** This department has general management of the farming of the land; the property is divided into units, each under the management of a manager. Units are so established as to give to each manager approximately one thousand acres of cotton. Unit managers report to the head of this department all questions involving labor, planting, cultivation, harvesting, etc., and are under his direct supervision.

**Auditing Department:** Has charge of all matters of account, and of a clerical nature.

**Merchandising Department:** The company operates a general store at Scott, and five or six branch stores out on the plantation. These are all under the superintendent of this department, who buys the merchandise, employs necessary

assistants and, in short, manages and operates the stores.

**Live Stock Department:** Live stock on the plantation, consisting of some 1,200 head of mules and horses, is under supervision of an experienced live stock man who inspects barns and mule lots, purchases necessary live stock and has general supervision over care and custody of the live stock. In this he is assisted by a veterinarian, whose entire time is devoted to looking after the health of the live stock.

**Department of Public Health:** In this department under the general management of a competent physician and surgeon, the company has a capable white trained nurse and a sanitary inspector. These are assisted by two negro nurses and such other employees as are from time to time found necessary. The department operates a comfortable thirty-bed hospital, fully equipped, served by one ambulance. During the past year an extensive campaign has been waged in an effort to improve health conditions of the labor, and to reduce the amount of malaria, tuberculosis and other communicable diseases. During the past five years the company has eradicated typhoid fever entirely.

**Mechanical Department:** To this department is assigned all work of a mechanical nature, management and operation of cotton gins, lighting system, water system, telephone system, mechanical repairs to trucks, tractors and implements.

**Construction and Maintenance:** This department has charge of all repairs to buildings and improvements, and the construction of such new buildings as are from time to time required.

The matter of looking after company contracts, purchasing general company supplies, attending to the matter of insurance of company property, is assigned to the secretary of the company.

Heads of the above departments all report their activities to the president of the company, who exercises general supervision over the sundry departments.

The company formerly maintained a department for marketing cotton and planting seed, but in later years has found it more satisfactory to market its cotton through the Staple Cotton Cooperative Association, and to market its planting seed through a contract with Messrs. Shortle & Buford, of Memphis. Seed sold to oil mills are handled directly through headquarters office.

### Programs for Furniture Shows Are Readjusted

Plans to eliminate certain furniture expositions and to have only one show at each of the four show centers each year were adopted by Southern and Northern furniture manufacturers at a recent conference at White Sulphur Springs, W. Va. It was decided that the latter part of May or some time in June was the most appropriate period.

This program replaces the former schedule of four shows at Grand Rapids, four at Chicago, two in New York and two at High Point, N. C., and is designed at the same time to reduce the expense for the manufacturer and enable him to make a better showing.

### Front Royal Gets Water Supply Quickly

Front Royal, Va.—Faced with a shortage of water because of drought conditions, the city council of Front Royal met at 8 P. M. August 5 and appointed a committee composed of H. H. Marlowe, E. D. Stokes and L. B. Dutrow, town manager, to consider the situation. This committee rendered its report on August 6 and recommended a pump on the Shenandoah River, with an 8-inch line to the present filters of 1,000,000 gallons daily. Council approved the recommendations and awarded contract that night to Allen J. Saville, Inc., Richmond, whose forces worked daily from 5 A. M. to 10 P. M. and pumped water to the filters at 4 P. M. August 15, thirty-two hours ahead of schedule. A pump of 800,000 gallons daily capacity manufactured by the Pomona Pump Co., Pomona, Cal., was furnished by the Sydnor Pump & Well Co., Richmond, with a 75-horsepower motor, and 10,000 feet of 8-inch cast iron pipe was supplied by the Glamorgan Pipe & Foundry Co., Lynchburg, Va. Leadite, made by the Leadite Co., Philadelphia, Pa., was used in the pipe line.

### Recasting Cotton Freight Structure

Readjustments of the freight rate structure on cotton, to iron out any present inequalities or discriminations, have been ordered by the Interstate Commerce Commission, after an investigation on its own initiative. All-rail rates within and from Southeastern territories were found fair and are to remain practically unchanged.

Rates within the Mississippi Valley are to be generally reduced and distance scales of any-quantity rates are prescribed for the Southwest and from that section to Southern and official territories, 10 per cent higher than within and from the Mississippi Valley. No differentials are prescribed for Texas and Oklahoma differential territory, except that group and group rates are prescribed from the Southeast to Houston, Galveston and Texas City, which are grouped at the same rate for distances in excess of 200 miles from Houston.

Compression-in-transit rates include the full compression charge.

[From Amarillo (Tex.) Sunday News and Globe.]

# The Story of a Dime

## OR

# How a Man Lost His Job

(Reading Time Two Minutes)

Pushing his chair back as he arose from the table where he had just done full duty to a hearty meal, Dick Roberts approached the cashier's desk with check in hand.

"A cigar will certainly finish off this good dinner," he thought. As he motioned to the proprietor behind the counter to bring forth his favorite cigar, his eye glanced at a headline in a magazine.

"BUSINESS WILL SUFFER DULL SPELL FOR SEVERAL MONTHS."

"Nope, I guess I won't take a cigar," he reflected, "I'd better pinch my pennies, now; things are tightening up."

A few moments after Dick left, a crockery salesman entered the restaurant. After some conversation with the manager, he was asked to ship several barrels of cups and plates to replace the supply which had become nicked or slightly damaged. As he was preparing to leave, the manager called him over and requested that the order be held up sixty days.

"Why?" was his surprised rejoinder.

Said the manager, "Well, it looks like things are tightening up and I'll just use what I have until conditions look better."

Downcast, the crockery man left. His next call was down three blocks farther, so as he walked along his eyes were attracted to a beautiful display of neckties in a men's wear shop.

"I need some ties," considered he, as on the spur of the thought, he entered the shop. An attentive clerk showed him many attractive patterns, of which he selected several. Price was no object. His purchase was about to be wrapped when the loss of that crockery order entered his mind.

"Hold on," said he, "I'll drop in later and get those ties," and left without paying for them.

This particular store had been contemplating, for a number of weeks, the idea of redecorating the store. At this juncture of our story the decorator who had planned and figured on the job came in. Happy in the thought of a fine big job he was just ready to close, he approached the proprietor.

"Well, we are ready to start the job, the men will be down tomorrow to erect the scaffolding."

"Mr. James," said the proprietor, "I think we will have to hold off on that job for about two months. Things look mighty shaky, customers are coming in, but don't buy anything. Many do not even come in now, we'll have to hold off awhile."

A very disheartened decorator returned to his office. In the midst of despondence entered an old employee, John Simpson. John was the estimator and inspector for this particular contractor.

"Well, John," said our decorator, "I hate to do it, but it looks pretty bad in general. I'll call you up if things liven up."

Dick will never know it, but that cigar was responsible for it all.

Pushing his chair back from the table where his meal remained scarcely touched, Dick Roberts walked disgustedly to the cashier's counter and paid his check.

"H'lo, Roberts, how's the boy?" a friend greeted him.

"Rotten!" he retorted in a voice that sounded just as his frown looked; "—got a headache all the time, no appetite. Business is rotten, too. Just got a wire from the old man telling me to come in Saturday."

As the friend offered polite sympathy and strolled away, Dick Roberts once more passed the news stand and glanced down at a magazine headline:

"PERIOD OF DULL BUSINESS REMAINING LONGER THAN ANTICIPATED," he read; "Decorators Report Forces Cut Due to Cancelled Orders for Spring Remodeling. Buying Down."

MORAL: Hard times are the result of rumor; never of hard work. Business is good for those who are going after it. Too many people during the past few months have been THINKING HARD TIMES; and their influence has widened just as ripples on a pond. In other words, THE BUYING OF THAT CIGAR HAS JUST BEEN POSTPONED TOO MANY TIMES. LATELY, BY TOO MANY PEOPLE! ARE YOU ONE OF THE GUILTY ONES?

Acknowledgment to William Easterwood, Jr., Company, Dallas, Texas.

# The New Industrial Revolution— Decentralization

By GUS W. DYER, Professor of Economics in Vanderbilt University and Editor, *Southern Agriculturist*, Nashville, Tenn.

The industrial revolution of history was brought about chiefly by the application of steam to machinery and transportation. This first great industrial revolution in the world's history has now been in progress about 150 years.

It was steam as a motive force that made large-scale production possible. The use of steam as power made it possible for the first time in the history of the world to have unlimited motive power at any point it was needed, and the railroad gave a world market to every factory connected with a railroad. This condition developed the use of machinery rapidly, and large-scale production displaced small-scale output.

The railroad reached only a part of the country effectively; the rest of the country remained in isolation from the great centers of industry created by the centralizing trend of the steam revolution. The decided economic advantage was in favor of the large city as a location for industry, over the small town and the rural sections. This advantage was so great that it soon became obvious that industry could hardly survive in the rural sections and the small towns in competition with industries in the big economic centers.

In addition to the natural economic advantages enjoyed by the big cities over the small town and rural section, the big cities held exclusively almost all of the luxuries and conveniences of modern civilization. They became the centers of social life, educational life, religious life and political life, as well as the centers of industrial life. They drew to themselves automatically the wealth, the capital and the leadership of the country. It soon became apparent that the opportunities for life and development were in the cities, and practically all ambitious men and women, boys and girls turned their steps in that direction.

This centralizing tendency of the steam revolution submerged the small town and rural sections as places to live and enjoy the achievements of modern civilization, and as a result, for a century, there was a steady flow of the population from the rural sections to the city.

## *New Industrial Revolution in Action*

Electricity was not made a revolutionary force until gasoline was devel-

oped. But, when gasoline and electricity joined hands, a few years ago, they started a revolution that is going to be far greater than the steam revolution. Twenty years ago, millions of the American people living in the rural sections and in villages and small towns were cut off from any considerable part in the achievements of modern civilization. They were living in what seemed to be hopeless isolation. They were deprived of the luxuries and conveniences that the cities had in abundance, and travel was practically impossible to millions. They passed their lives in these isolated communities, and passed out. They knew little or nothing of the modern luxuries and convenience enjoyed by those in the great cities.

In one generation, the gasoline-electric revolution has practically destroyed this "hopeless isolation," and has brought millions out onto the great highways of modern life and modern civilization. It has put into the hands of the poor, as well as the rich, a means of transportation by which they can make connections with every part of the country, and see new sights almost anywhere and everywhere.

This new revolution is taking to the small town and the village, and even to rural homes, practically all the conveniences and luxuries that were possible only to city people a short time ago. Farmers may now have hot and cold water, running through their houses from wells at small expense, and may have electric refrigeration equal to that in the great cities. They can sit in their houses and, practically at initial cost, can listen to the country's best music, best preaching and best instruction. They have the same music, the same sermons and the same lectures that the people in the great cities have, and in the village or town see the same pictures that are exhibited in the great cities.

More than this, people in the small towns, under the new revolution, are now in a position to enjoy many things that are denied to the people in the congested cities. They can have homes and home life of a nature impossible to millions in the great cities. They can enjoy the automobile maybe more than city people; their cost of living is less and the opportunities for development are better, in various ways.

Under the new revolution, the city is rapidly losing its relative advantages as

a place to live, and its serious disadvantages are becoming more and more apparent to those capable of judging.

Business men with vision were quick to interpret the new order of things as it affected industry. They saw the advantages of the small town and the rural sections as locations for industries, under the new conditions, and decentralization of industry began. North Carolina was a leader in the movement, but other States, especially in the South, soon fell in line.

Notwithstanding the fact that North Carolina has developed rapidly in industrial lines in the past 20 years, we find no big cities in that State; but, we find the big factories in the small towns and in the rural sections. In Tennessee, the big new industries that have located there in recent years are chiefly in the mountains of east Tennessee, either in small towns or in rural communities. In Virginia, South Carolina and Georgia and in other States, we see the same trend.

## *Why Industries Go to the Country*

Under the new competitive conditions created by the gasoline-electric revolution, industries follow the course of the least cost. The new order of things has brought hundreds of small towns and rural communities into the industrial field, and these new factories, operating at lower costs, are making it very uncomfortable for the industries located in the big cities. In the end, other things being equal, the industry operating at a lower cost will outrace its competitor forced by conditions to operate at a higher cost. The fact that industries located in the rural sections can operate at a lower cost than those in the big cities has been demonstrated.

The cost of living is less in the rural sections than in the big city, and the general life conditions in the small town now are superior to those in the big city—for the man of moderate means.

In the small communities, factories may buy land cheap and build good homes for their employes and reduce their rent enormously, and at the same time give them much better homes and better living conditions than they could get in the city at the higher cost. This policy is being adopted by manufacturers, especially in the South.

The ordinary comparison of wages

between the factories in the cities and the factories located in the rural sections is very misleading. This comparison is based on money wages, rather than real wages, and such comparisons are not fair or logical. High money wages, under certain conditions, may be low real wages and, conversely, low money wages may be high real wages. An important thing to the working man is the kind of living he gets in return for his work. Better houses at smaller cost, entertainment and recreation almost without cost, and the opportunity to keep a cow, raise chickens and cultivate a garden, and thus add to his living without appreciable expenditure of money, are all an essential part of his real wages. Employees of factories in small towns and in rural sections may have all of these advantages and opportunities and many others that are denied to the working man living in the big city. When these are added to the money wages, as they should be, the difference in wages in many instances is believed to be in favor of the employee in the rural sections.

With factories located in close proximity to each other and competing with each other, and with easy and quick transportation between all sections of the country, the opportunities to exploit labor—to get it at less than its market value—are rapidly disappearing. Those who talk about exploiting labor, as a rule, are theorists or sentimentalists, poorly informed on economic laws and the condition of modern business.

The employees in these factories are not poor, simple, helpless folks, as the theorists seem to assume. As a rule, they know their interest, and it is not difficult now for them to move from one factory to another, from one part of the country to another, and many of them move often. If they stay where they are, the strong presumption is that they believe they are better off than they would be elsewhere.

As industries develop more and more in the rural sections, the wage problem will adjust itself to the law of supply and demand, and each worker will get approximately the value of his services on an open market, without necessity for any sort of compulsion from any source to protect his wages.

One of the chief reasons industries are leaving the city is the desire to locate their plants where the directors will be protected in their constitutional rights of freedom of contract. It is not so much cheap labor that attracts them as it is the atmosphere of freedom of contract. This is shown in the marvelous industrial development of Michigan, which protects every automobile manufacturer within its border in his constitutional rights of freedom of contract. The automobile business com-

pletely explodes the theory that absolute freedom of contract is in any way antagonistic to high wages and good working conditions.

Decentralization of industry gives substantial hope to agriculture. With the factories located in small towns and in the rural sections, home markets will be created for farm products, and the farmers located near them may make

good profits if they will adjust their production to the demand of the consumer. In addition, the farmers' sons and daughters who prefer the factory to the farm may work in the factory without leaving home. The new conditions give the farmer's family an opportunity to combine farming with factory employment, and this gives new hope to the farmer.

## Building Motor Truck Bodies for "Dry-Ice"

Motor truck bodies especially designed to use "Dry-Ice" as the refrigerant are being produced by the American Car & Foundry Co. of New York. Designs were worked out in collaboration with the Dry-Ice Corporation of America, based on results of exhaustive tests and experiments. The manufacturers believe, as a result of economies and other advantages obtained from "Dry-Ice" refrigerated trucks now in service, that the use of such units will increase rapidly, for the transport of ice cream and other dairy products, as well as for meats, fish and other commodities which must be kept refrigerated.

A growing demand for "Dry-Ice" refrigerated equipment is reported from the South and Southwest, the Purity Ice Cream Co. of Tulsa, Okla., being a recent purchaser of a number of trucks.

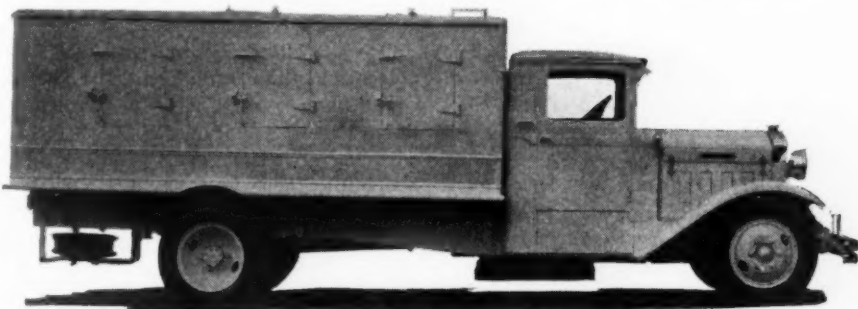
For more than a year the American Car & Foundry Co. has been producing this type of truck body, in standard sizes and of various capacities ranging from small single compartment trucks holding approximately 75 gallons of ice cream and mounted on 1/2-ton truck chassis, to triple compartment bodies having a capacity of 1200 gallons, in five gallon cans, and mounted on 5-ton chassis. Among advantages claimed for "Dry-Ice" are the following:

Its light weight and its efficiency permits the use of lighter trucks and bodies; its even and slow evaporation insures delivery of materials in perfect condition; its bulk is small compared to ice

and salt, thus increasing the pay load; trucks being lighter and smaller can travel faster and make more stops in a day; it eliminates destructive effect of brine on trucks and chassis and lengthens the life of trucks in such service; drivers can maintain a neater appearance; trucks can be kept clean and sanitary.

When "Dry-Ice" and its refrigerating properties were announced it was believed that it offered unusual merit as a refrigerant in transportation, but the problem of adapting it to transportation conditions required study and experiment. The American Car & Foundry Co. initiated studies three years ago in an effort to produce a truck body insuring maximum results from this method of refrigeration. In the body design, safety tread steps are built on the body to facilitate icing from above, and footholds are securely fastened to the roof; each compartment is provided with complete drainage, in-built drains, without heat conductor extended from inside outward; insulation is of a special type, securely fastened in place, sealed air-tight and moisture proof; there is a device for controlling temperature in the car body and rate of evaporation of the "Dry-Ice."

In addition to "Dry-Ice" refrigerated truck bodies the American Car & Foundry Co. is producing a complete line of "Dry-Ice" shipping and storage containers. Both lines of equipment are produced at works in St. Charles, Mo., Chicago, Ill., and Wilmington, Del.



A 3-compartment, 600-gallon Capacity Truck, With Refrigeration Equipment

# American Shipbuilding Industry

## Reduction of Cost by Standardization Dependent Upon Continued Activity—Wages Account for 80 Per Cent of Ship Construction Cost

**R**EASONABLY steady operation of American shipbuilding plants, of which 17 are in the Southern States, was described as the major factor for cutting the cost differential between domestic and foreign ship construction, at the third National Conference on the Merchant Marine, held last spring in Washington. As a committee report now available expressed it:

"The committee repeats that the fundamental basis of substantial cost reduction in the shipyards is absolutely dependent upon a reasonably steady flow of orders which will provide continuity of employment. If this condition can be established, then the shipyards can proceed to reduce cost by standardization and by other means."

Of a dozen weighty subjects on the conference agenda, two or three were of prime importance to the South as a leading maritime section of the country in construction and operation of shipping and volume and value of foreign commerce. Great shipbuilding plants punctuate the coastline from Baltimore to Galveston; great steamship lines operate between Southern ports and harbors in all parts of the world, and the South ranks first in exports and second in imports in the five divisions of maritime States. Among these topics were: "Reduction of Differential Between Shipbuilding Costs Here and Abroad"; "Construction Program Under the Jones-White Act"; "American Port Development," and "Cooperation Between Shippers and Ship Operators in the Use of American Ships."

On construction lines investigations have shown that the cost of building a tanker, or cargo ship or combination vessel in the United States is 50 or 60 per cent, and in some cases 100 per cent, greater than in foreign yards, and the problem of saving this differential was an outstanding topic in the debate. The main feature in the suggested solution has been given. H. G. Smith, president of the National Council of American Shipbuilders, was chairman of this committee, and Homer L. Ferguson, president of the Newport News Shipbuilding & Dry Dock Company, was prominent in the personnel.

Chiefly contributory to American high costs is the item of labor. "The wages of American shipyards are about double those of British shipyards and constitute the fundamental and principal

cause for the higher cost of American built vessels," the report said, but opinion was general at the meeting that the American wage standard should be maintained. "Eighty per cent goes back to the American workmen all the way up and down the line, in preparing raw materials and materials that go into the building of ships," said C. L. Bardo, president of the New York Shipbuilding Corporation, in discussing new construction, which may approximate \$300,000,000.

As to cost of material, it was found that for the three types of vessels considered the average was only about 20 per cent greater in the United States than in Great Britain, although freight charges are heavier in the United States, because of longer hauls.

Although dependent somewhat on continuous operation of the yards, the committee regarded standardization in ship design and construction as the second important step toward reduction of American cost. The committee was unanimous in the opinion that definite progress in the standardization of cargo vessels and oil tankers can be made by close cooperation between the various interests represented on the committee, provided the yards can be kept busy.

Under a law of 1920, said J. L. Ackerson, special expert of the Shipping Board, in speaking of Jones-White Act possibilities, a construction loan fund of \$125,000,000 had been created, which the law of 1928 had increased to \$250,000,000. Under the 1920 law and prior to the 1928 law, \$18,829,500 in loans had been authorized for 15 vessels, and since the enactment of the 1928 law loans have been authorized totaling \$55,557,487 for 21 ships.

To supplement the Jones-White law, Mr. Ferguson advocated duplication in the construction of ships of a given type at one yard.

"If two ships costing, say, \$4,000,000 apiece are thus built," said Mr. Ferguson, "the cost, with the same percentage of profit to the builder, is \$3,750,000, or a saving of 6.4 per cent. If three ships are built, there is a saving in each of between 8½ and 9 per cent, and if four ships are built there is a saving of about 10 per cent. If five ships are built, there is a saving of over 11 per cent, and after that the saving is less than 1 per cent a ship. Now that is the

easiest money that I can see that might be saved in duplication. These costs are for ships built in one yard for one owner; if built in one yard for different owners, the savings in material would be the same, but the savings in labor would be somewhat reduced."

In speaking on the same subject, Mr. Smith estimated that ships built, building or probable under the Act, allowing nothing for ships to be reconditioned or converted, would give a program of \$375,000,000, and added:

"If you reduce that to the number of employees required, it will be somewhere in the vicinity of 20,000 a year continuously employed in shipbuilding, which is a very large jump from what we had a year or so ago. The volume of business at the present time is a little more than \$75,000,000, but the time for completion varies from 12 to 28 months."

The volume of small work, not including Navy work, said Mr. Smith, possibly might add another 10,000 men to the business over the next five years, giving a total of 30,000 men in the shipbuilding industry. At present, there are 82 building ways in the United States in shipyards that now are in operation, though some are working with a considerably reduced staff, and the normal capacity of all those yards is estimated at about 40,000 men per year. Further, he said:

"At least 200 industries have been definitely located as being interested in shipbuilding, and it is probable that almost every known industry in the United States, and every State in the Union, is interested directly or indirectly. The net result of all this is a much healthier condition in the shipbuilding industry than it has enjoyed at any time within my recollection."

As the only speaker on "American Port Development," Major General Lytle Brown, chief of engineers, mentioned that "on the Gulf coast, New Orleans handles over 16,000,000 tons of commerce; Houston ranks second, with 13,000,000 tons; Beaumont and Port Arthur, regarded as one, 10,000,000 tons, plus 8,000,000, about 18,000,000 tons."

"Congress realizes," General Brown added, "that there is no use spending any money on the part of the general government on a port which has not the other things connected with it which are necessary to make the port a success—railroad communication, road communication, harbor, water terminals

either in existence or projected, and especially those latter things with the water terminals open to the general use of public carriers."

One important reason why shippers patronize foreign ships is that not enough American ships are operated to take care of their business and properly preserve their sale of American goods abroad, said Frank C. Munson, president of the Munson Steamship Lines. To remedy this, he suggested: (1) Utilization of the Jones-White law; (2) education and propaganda in the United States for American ships; (3) a Government appeal to American patriotism; (4) appointment of a group of professional lecturers to cooperate with steamship companies in describing the routes, services, advantages and attractions.

T. V. O'Connor, chairman of the Shipping Board, presided at the conference.

### Considering Dry Dock for Tampa

Tampa, Fla.—For the purpose of determining the practicability of constructing a dry dock here, the Tampa Chamber of Commerce and the Tampa Shipbuilding & Engineering Co. have engaged William T. Donnelly, a marine engineer of New York City, to survey Tampa harbor. This survey is expected to determine whether or not there is a need for a new dry dock and if so, what is the best location and the best method of financing it. If the project is undertaken, Mr. Donnelly will prepare plans and specifications and supervise construction.

### 55-Mile Natural Gas Pipeline

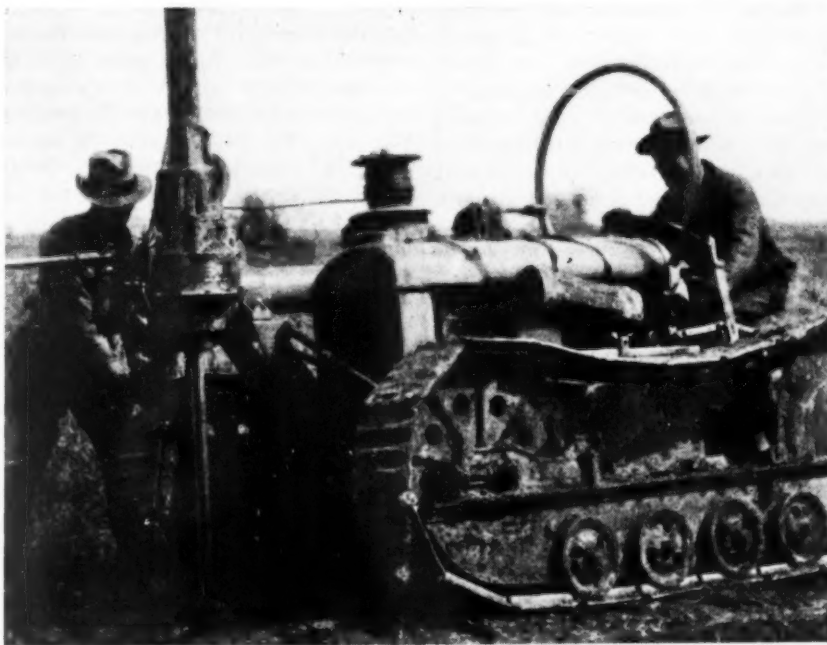
Leland, Miss.—The Memphis Natural Gas Co., Memphis, Tenn., largely owned by the Appalachian Gas Corp., New York, recently started construction of a 55-mile pipeline to convey natural gas from the main Louisiana-Memphis line to a number of Mississippi communities, including Leland, Indianola, Morehead, Ittabena and Greenwood. Construction is being handled by the Phoenix Utility Co., the construction unit of the Mississippi Power & Light Co., Jackson, which will bear part of the cost. The new line will connect with the main line near Greenville, Miss., and will consist of 8½-inch pipe, with electrically welded joints and a Dresser coupling every 500 feet. It will cross the Bogue Phalilah, Sunflower and Yazoo rivers, necessitating multiple-crossings at these points, consisting of two 6-inch lines anchored with 750-pound river clamps. Each pair of lines will be tied into the main line on either side of the river by headers and each line will be equipped with gate valves.

## Earth Boring Machine Speeds Construction of Railroad Block Signal System

In the block signal construction program of the Missouri-Kansas-Texas Railroad Co. for 1930, a power-operated earth auger, mounted on a crawler-type tractor, is used for digging holes for telegraph poles and for lifting the poles and setting them in the holes. The machine consists of a Fordson tractor with crawler traction unit and dirt auger as applied to it by the Highway Trailer Co., Edgerton, Wis.

The machine was utilized recently for digging holes and setting poles for approximately 95 miles of automatic block signals installed under supervision of J. A. Johnson, signal engineer, Denison, Texas. Where signals were installed,

right-of-way generally was uneven and rough, composed of fills and cuts which somewhat slowed up operation of the machine. However, a check of reports showed the machine had an hourly digging average of eight holes and that it set eight poles an hour. Three men operate the machine; one drives the tractor, one handles the dirt auger, the third attaches the cable to the pole to be lifted into the hole. Based on results obtained, it is estimated that on fairly level prairie country with no obstructions the machine would set up 12 to 15 poles an hour. In addition to digging holes for poles, the bit for this machine may be set at any angle necessary to dig holes for guy anchors.



Operating the Machine Which Digs the Holes and Places the Telegraph Poles

### Big Furniture Factory Merger

Martinsville, Va.—Stockholders of the J. D. Bassett Manufacturing Co. and the Bassett Furniture Co., of Bassett, Va., and the W. M. Bassett Corp., Martinsville, have organized the Bassett Furniture Industries Corp., as a holding organization with a capital stock of \$5,000,000, to operate six large and modern furniture factories in Henry County. The new company will control three large plants manufacturing dining room furniture. Officers of the holding company include J. D. Bassett, president; J. D. Bassett, Jr., vice-president, and W. M. Bassett, secretary-treasurer and

chairman of the board of directors. The combined factory output is approximately \$10,000,000 worth of furniture annually.

### Bids on \$1,000,000 School

San Antonio, Tex.—Bids will be opened Sept. 10 by the San Antonio School Board to erect a new \$1,000,000 senior high school building at Spanish Acres to accommodate 2000 students. Adams & Adams are the architects, while Phelps & Dewees are architects for the school board, both of San Antonio. The W. E. Simpson Co., San Antonio, is the engineer.

# IRON, STEEL AND METAL MARKET

## Downward Trend of Steel Appears Checked

Pittsburgh, August 25—[Special.]—The rate of steel production appears to be stationary, at a little above 50 per cent of capacity, or at between 52 and 54 per cent, which compares with a 56.35 per cent for July. Apparently the trend is no longer downward, but should there now be an upturn the seasonal low point would have fallen fully a month later than usual.

The percentage rate of operation is a very important matter from the standpoint of steel producers, but when it comes to consumption the case is different, because steel making capacity has been increasing constantly, the last four calendar years showing 13 per cent increase. In point of tonnage the present steel production is not such a great deal below the summer rates in years prior to 1929 and 1928.

The automobile trade is showing no improvement, but rather the reverse. There was more or less resumption of production three weeks ago but now it appears the pace cannot be continued, and not a great deal of steel was taken for that resumption as there were stocks of steel and parts to liquidate.

Ordinary building construction, outside of fabricated structural work, is taking very little steel, in pipe, sheets, nails, etc.

In striking contrast is the activity in fabricated structural steel work. The official report for the first seven months of the year shows shipments of the fabricating shops at 2,008,000 net tons, or one-half per cent over shipments in the same period of last year, and far above all previous years. Bookings ran short of shipments by an amount less than one-half of a month's business. Thus if the shops were booked for about five months at their peak they are now booked nearly as well. The current rate of shipment of fabricated structural steel represents absorption of about 14 per cent of the total current make of steel, a proportion well above the average and probably unprecedentedly high. Some steel is used in connection with this work, in concrete reinforcing bars, machinery, elevators, etc., etc., so that the total absorption in such building is well above 15 per cent. Line pipe may be estimated as absorbing about 10 per cent of the current steel output.

These two lines are far and away the most active lines of steel consumption and with their proportions so high some other lines must be particularly low.

Steel producers are disposed to attribute the recent very light rate of buy-

ing to a drought scare. If so, buying should be correspondingly heavier in a short time for the drought will have very little adverse influence upon the consumption of steel. The agricultural implement industry has been in its usual between-seasons period and has nothing to lose but something to gain from its recent rate. Tin plate consumption will be very little affected, certainly not by as much as 5 per cent of a year's average tin plate production. Crops are usually raised in excess, the best only being canned, and some crops are not affected at all.

There are wide divergences in rates at which steel plants are running. The Homestead works of the Carnegie Steel Company are reported producing steel at full capacity, the product going chiefly into structural work. Rail mills on the contrary have a very light operation, but the annual rail buying movement is expected to begin soon. Sheet mills are at slightly below 50 per cent, with strip and wire mills well below 50 per cent. Pipe and tube mills present the curious aspect of running at capacity on the larger sizes, for line pipe, and at well below 50 per cent on ordinary standard pipe, boiler tubes, mechanical tubing, etc.

Prices in several finished steel lines are rather easy, there being shading of the ordinary market figures on orders at all desirable. The general trend has been slightly downward with scarcely an interruption for many months, but with no uniformity, some lines being at around cost while others remain distinctly profitable.

## General Quiet Dominates the Metals

New York, Aug. 25—[Special.]—The non-ferrous metals have been quiet from the standpoint of volume of sales and steady as regards prices over the past week. A few price changes have been recorded but they have been very moderate. For a short time copper sold at 10¼c per pound, the lowest since 1897, but soon snapped back to 11c. Lead is unchanged. Tin has been unusually steady at around 30c per pound. Zinc has sold generally at around 4.35c per pound, East St. Louis.

The minor metals have been quiet also. Antimony has shown the widest price change over a month ago, selling now at 7¼c per pound, duty paid, as against 7c at the start of the month, the higher prices having been due to disturbances in China. Quicksilver is generally \$119 per flask, though concessions

of \$1 or more are reported. It is rumored that Spanish quicksilver mines are to remain closed for several months to come, though this rumor may have been put out for market purposes. Silver prices have been higher, advancing on Monday ⅞c per ounce to 36¼c, the highest in several months, due to better buying on the part of China.

Reports from the steel industry are more encouraging, though so far there is not much of a tangible nature on which to base hopes. However iron and steel scrap prices at Pittsburgh have risen 75c per ton in the past fortnight, which is regarded as a cheerful barometer of the industry.

It has looked for a time as though the severe drought would curtail consumption of the metals, though recent rains have bettered the situation. A continuation of drought conditions would have curtailed consumption of tin in the canning industry; zinc in the construction of farm buildings, grain warehouses and the like; copper in the form of electrical machinery used on the farm, etc.

Consumption of the metals in the automobile industry promises to be light for some time to come. The largest maker of cheap automobiles may go on a three-day per week schedule as against four days at present. Another prominent maker is about to change models, which slows up production.

Large building operations continue brisk, however, as judged by the large amounts of fabricated structural steel being used. Makers of radiators and sanitary ware also report improvement which bears out good conditions in the big building industry. Aluminum alloys are coming into greater favor for architectural effects. The dome of a new building in Boston is to be of aluminum, while the Chicago Board of Trade building is to contain a symbolic figure, cast of aluminum.

At least 6,000,000 pounds of copper were sold at 10¼c per pound. The sale was made by a custom smelter, this class of producer needs to make sales more regularly than the other class who own ore mines. The price lasted at this figure for but a day or two. However the important news was that the 11-cent level was broken, a figure which many believed to be bottom. It is expected that similar cuts will be made in the weeks to come.

Copper statistics for July had not been particularly favorable. Surplus stocks of refined copper increased again, though total stocks of blister and refined copper declined, the most cheerful feature. Though shipments were fairly large they undoubtedly did not all go

into immediate consumption. The problem of the copper producers in view of their large surplus stocks is receiving much attention throughout the business world. One of the great writers for a large newspaper chain has penned an editorial on the subject in which he suggests that copper producers fabricate their refined metal into the form of copper sheets which should be distributed to the agricultural sections all over the country for use for copper flashings, eaves, downspouts, roofs, etc., employing meanwhile an extensive publicity campaign to educate rural sections as to the advantages of the red metal. The writer suggests that the product be sold sufficiently cheap, say 15 cents per pound.

The zinc market has had a checkered price career of late. Within a few weeks in July prices rose from 4.05c to 4.75c. Early this month prices reacted to at least 4.50c. More recently they went much lower, or even to 4.25c, which is in fact the price today. However in the last few days the trend has not been steadily downward, there having been temporary rises. Demand for the metal is very quiet.

Surplus stocks of lead are now the highest this year at 62,000 tons, equivalent however to only one month's normal consumption, whereas in copper the surplus is equal to nearly three months. Lead has been quiet since the first week in August, yet sales of carload lots for prompt shipment continue steady.

Tin prices are steady with the steadiness that goes with a market in a rut. Since tin is a speculative metal the lack of fluctuation is disturbing to many elements in the trade.

### Pig Iron Selling in Small Lots

Birmingham, Ala., August 25—[Special.]—Volume of pig iron business continues light. A little tonnage has again been placed on the surplus piles on furnace yards. Shipments are in small lots with no indication that any softening of the base price would induce or encourage business, the \$14 per ton base, No. 2 foundry, being firm. A few sales only are reported as coming in from the Middle West or from points on the Atlantic coast. Production is on a low mark, August to show no increase as compared to the output in July. Less than 200,000 tons was reported for the past month.

While a number of smaller melters are operating at a fairly steady pace, the aggregate is showing no improvement. Cast iron pressure pipe shops are shipping well but new business is under that of a few weeks ago.

Machine shops and foundries are quite

active but their requirements are meager.

In steel there has been no improvement for the week. Operations, including ingot production, are estimated at 60 per cent capacity and by some this is a little high. Plate and sheet find demand and structural steel fabricating shops are busy. Contracts are reported every week, commercial and industrial buildings which will require steel. Highway building throughout the Southern territory is offering a market for reinforcing concrete bars. Cotton ties are now moving from the district, with early estimates that tonnage is to be as good if not better than last season.

Possibilities of export trade being worth while for this district are being discussed. Survey shows that rail is being shipped to Chile; creosoting cylinders and tanks to Brazil and Chile; sugar machinery into Mexico and Brazil; pipe is going to Canada and Argentina; machinery to Mexico; gas ranges to Argentina and Chile; electrical products, fuses and switches from Birmingham to New Zealand. Other movements are reported.

The coal mining industry still lags. Coke production is slightly better as ovens out for repairs are brought back into commission.

#### QUOTATIONS ON PIG IRON.

No. 2 foundry, 1.75 to 2.25 per cent silicon, f. o. b. furnaces, \$14.00; No. 1 foundry, 2.25 to 2.75 per cent silicon, \$14.50; iron of 2.75 to 3.25 per cent silicon, \$15.00; iron of 3.25 to 3.75 per cent silicon, \$15.50.

#### OLD MATERIAL.

Old steel axles .....	\$19.00 to \$20.00
Old iron axles .....	17.00 to 18.00
Old steel rails .....	11.00 to 12.00
Heavy melting steel.....	10.50 to 12.00
No. 1 cast.....	12.00 to 13.00
Stove plate .....	10.00 to 11.00
No. 1 railroad wrought....	10.00 to 10.50
Old car wheels .....	10.00 to 11.00
Old tram-car wheels .....	11.00 to 11.50
Machine shop turnings....	7.50 to 8.00
Cast-iron borings .....	7.50 to 8.00
Cast-iron borings (chem.)..	12.00 to 13.00
Re-rolling rails .....	12.50 to 13.00

### Bids on \$1,000,000 Federal Building

Tulsa, Okla.—Bids will be opened Sept. 16 in the office of Jas. A. Wetmore, Acting Supervising Architect of the Treasury Department, Washington, for the construction of the new \$1,000,000 Federal building here. The structure will be three stories and full basement and will cover half a block.

### \$508,154 Low Bid on Postoffice

Savannah, Ga.—Low bid to remodel and build an extension to the Savannah postoffice has been submitted by the John M. Geary Co., Asheville, N. C., at \$508,154, according to a tabulation of figures in the office of Jas. A. Wetmore, Acting Supervising Architect of the Treasury Department.

### Florida Municipal Bondholders Win

The Supreme Court of Florida has handed down a decision that the owners of bonds issued by Florida municipalities are entitled to funds derived from general taxation levied in such cities, in sufficient amount to retire the bonded indebtedness. In this action, a bondholder had asked that a certain city be ordered to levy an ad valorem tax sufficient to meet its indebtedness, while the answer was filed that such taxation would constitute double taxation on property which already had paid special assessment taxes for improvement, and was unconstitutional.

### Cotton Consumption and Stocks

For the 12 months ending July, consumption of cotton in the United States as reported by the Census Bureau was 6,114,000 bales, compared with 7,091,000 bales for the season ending July 31, 1929. Of the total consumption in the cotton mills of the country, the South used 4,757,000 bales compared with 5,392,000 bales for the previous season.

Cotton on hand July 31 in consuming establishments reached 1,183,000 bales compared with 1,052,000 bales July 31, 1929. But at public storage and at compresses in the United States cotton on hand July 31 reached 2,877,000 bales compared with 984,000 bales July 31, 1929.

Active cotton spindles in the United States during July numbered 26,464,000, of which 17,267,000 spindles were active in Southern mills.

For the 12 months ending July 31 imports were 378,000 bales compared with 457,800 bales for the 12 months of the previous season. Exports for the 12 months ending July 31 amounted to 6,690,700 bales compared with 8,043,588 bales for the year closing July 31, 1929.

### Plans for \$400,000 Hospital

El Paso, Tex.—Trost & Trost of this city have been commissioned by the City of El Paso and El Paso County to prepare plans and specifications for a city-county hospital of 150 rooms, to cost about \$400,000. Upon the completion of plans, a bond election will be called to provide funds to erect the building.

Low bid to erect a new Federal building in Alexandria, Va., was submitted on supplemental proposals, by the Beaman-Coleman Construction Co., Raleigh, N. C., at \$240,500, and contract is expected to be awarded soon.

# HIGHWAYS AND MOTOR TRANSPORT

## \$121,875,000 FEDERAL FUNDS ALLOTTED FOR ROADS

### States May Advance Highway Construction and Provide Emergency Employment

Washington, D. C.—The apportionment of Federal funds for highway improvement in the fiscal year ending June 30, 1932, as authorized by Secretary Hyde of the United States Department of Agriculture, will make it possible for states to anticipate Federal funds which will be paid to them next July and will enable them to expand and advance their highway programs at once and so provide emergency employment for a large number of men seriously affected as the result of crop failure. Of \$125,000,000 appropriated by Congress for the fiscal year beginning July 1, 1931, the Secretary apportioned \$121,875,000 to the several states and Hawaii, retaining 2½ per cent for administrative purposes. He will use his discretion as to the approval of projects and will expedite those complying with the following conditions:

That the state has obligated and has under construction all or practically all projects for which Federal aid funds were previously allotted; that state funds be required for each project in an amount sufficient to meet Federal aid funds on the legally established basis, which would not exclude voluntary contribution of additional county or local funds, but would require the state to provide a minimum amount equal to the Federal pro rate, basically 50 per cent Federal funds, and that the state highway department submit with each project statement a reasonable showing that the project if expedited would assist in providing employment in the drought areas or would directly contribute to the relief of unemployment.

The apportionment for Southern states, reaching a total of \$45,545,772, is as follows: Alabama, \$2,615,434; Arkansas, \$2,174,786; Florida, \$1,543,232; Georgia, \$3,316,029; Kentucky, \$2,356,367; Louisiana, \$1,745,445; Maryland, \$1,051,714; Mississippi, \$2,209,509; Missouri, \$3,957,287; North Carolina, \$2,871,722; Oklahoma, \$2,922,569; South Carolina, \$1,769,848; Tennessee, \$2,687,123; Texas, \$7,620,239; Virginia, \$2,379,788, and West Virginia, \$1,324,680.

### Meeting of Paving Brick Manufacturers

The 25th annual meeting of the National Paving Brick Manufacturers Association will be held at the William Penn Hotel, Pittsburgh, Pa., February

4, 5 and 6, 1931, the program for the last two days to include papers and discussions of the latest practices in the design and construction of streets and highways, particularly the vitrified brick type. Business conferences will be held on the first day of the meeting and the

annual banquet will be held on the night of February 5. George F. Schlesinger, formerly state highway director of Ohio, is chief engineer and managing director of the National Paving Brick Manufacturers Association, with offices at 1245 National Press Building, Washington.

## Finley Surface Mixer a Veritable Mobile Road-Building Plant

In building roadways by the "Finley Method," a specially designed machine, known as a surface mixer, is operated over the roadway and while so passing mixes bitumen with any loose material on the surface, thus producing the equivalent of a plant mix.

Sand-clay, macadam, gravel and similar roads, it is pointed out, wear away rapidly under traffic and erosion, and material so wasted constitutes a capital loss. To a large extent this loss can be stopped by use of the Finley method, say its developers, and the old road crust of sand-clay, macadam, etc., is turned into a permanent investment. For illustration, in a gravel road that has begun to ravel under traffic and has reached the stage where there is considerable loose pebble on its surface, more loose material may be added if needed to strengthen the roadway, or more may be loosened from the supply below. Then, by using the surface mixer, the entire surface may be con-

verted into a comparatively waterproof, enduring and dustless bituminous mat of any desired thickness. Sam E. Finley, Atlanta, Ga., developer of the method, has handled such construction at the rate of four miles in a single day, using three or four laborers.

The machine consists of a frame on wheels and carrying a tank for supplying bitumen, and a pump for forcing the bitumen under high pressure through spray nozzle, and thus into and over the surface aggregate. The frame carries a series of blades which pick up the aggregate, and rotate and tumble it through the spray of bitumen, then deposit the coated aggregate in windrows which in turn are spread and harrowed, then again picked up by following blades and the process repeated. After leaving the machine the aggregate is completely coated with bitumen and spread out ready to roll at the proper time. In this manner surfaces up to three inches thick have been successfully mixed.



Details of the Machine Are Shown As Follows:

(A) Three banks of spray nozzles. (B) Primary set of mixing blades. (C) Windrow spreader, one behind each blade. (D) Redistributing harrow. (E) Secondary set of mixing blades, followed by spreaders and final strike-off blade. (F) Stand for forward operator. (G) Bitumen tanks.

# AVIATION, AIRPORTS AND AIRWAYS

## Air Transportation and the Southwest

By

R. W. IRELAND,  
General Traffic Manager,  
National Air Transport, Inc.,  
Chicago.

**T**IME and not distance is the controlling factor in the relation of cities in so far as that relation is affected by transportation. One city may be 800 miles from another, and a third only 600 miles from the first; yet if available transportation facilities make it possible to go from the first to the second in 12 hours, and inferior facilities require 15 hours from the first to the third, business and social contact of the second is closer to the first than to the third. This truism, in a nutshell, explains the value of air transportation to the Southwest.

It is said sometimes that the Southwest is an empire in itself. This is true, but it is not a self-contained empire. It must have daily contact with

3 o'clock in the afternoon will deliver mail and express in New York early next morning. In this respect Kansas City is practically on a parity with Chicago. The thought occurs that Chicago, through use of the airplane, might overcome Kansas City's gain and maintain its advantage because of closer proximity to New York. Analysis, however, shows that the longer the plane is in the air, the greater the time saving over other forms of transportation. A big transport plane travels an average of

York on National Air Transport lines is roughly 12 hours, and in flying this time the plane gains about 24 hours over the train. Flying time between Chicago and New York is approximately 7½ hours, and in this time the plane gains 15 hours over the train, giving an excess saving of nine hours for the Kansas City-New York trip. The net result is that air mail and express leaving Kansas City in the afternoon gets next-morning delivery in New York, the same delivery as received on Chicago shipments leaving the same day, although in the case of Chicago the departure time is somewhat later than from Kansas City.

The value of any given form of transportation naturally must be determined by comparison with other available methods. Here, the airplane scores again in its benefit to the Southwest where the development of ground transport, railroads, is not so far advanced as in some of the more thickly populated sections. This does not mean the Southwest does not have good railroads and highways, for in many cases these have been highly developed, but the Southwest as a whole does not possess these facilities to the extent that older sections do. Hence, by comparison, aviation finds a greater usefulness.

The average individual's conception of the resources of the Southwest is expressed in the word oil. It is true in certain sections of the Southwest that the petroleum industry has been the most spectacular and profitable development. Yet the resources of the section are more highly diversified than those of many other parts of the country.

Seven Southwestern States—Oklahoma, Kansas, New Mexico, Texas, Arkansas, Louisiana and Missouri—produce 22 per cent of the nation's corn and 20 per cent of its wheat. This group of states practically monopolizes the production of two important raw



Curtiss Falcon Mail and Express Plane Enroute to Texas

This air machine of the National Transport Co. has a payload capacity of 850 pounds and a cruising speed of 110 miles an hour.

larger and more important industrial and financial centers in other parts of the country, especially with New York and the East. Because of greater time required to transport persons or goods from the Southwest to these industrial and financial centers, the Southwest has been handicapped to some extent in competition with other sections which happen to be closer to these centers.

Air transport is doing much to remove this economic handicap and will do more. Roughly, the airplane saves a full business day in transportation between cities of the Southwest and important centers of the East. In many instances this saving places Southwestern cities on an equal basis with cities much closer to the Eastern Seaboard. From Kansas City, for example, a plane leaving at

110 miles an hour, about 70 miles faster than the speed of the average express or passenger train.

Stated in another way, each hour the plane flies it saves two hours. Flying time between Kansas City and New



Hangar of National Transport Co., at Dallas, Texas

materials, sulphur bauxite for making aluminum, and sugar cane. Twenty-one per cent of the country's horses, 43 per cent of its mules and 25 per cent of its cattle come from these seven states. In 1927 this section produced cotton and cottonseed valued at \$791,000,000. Oklahoma, though seventeenth in area, is one of six states of the Union to produce over a billion dollars in raw materials each year. This one Southwestern state in 1926 produced 10 per cent of the country's mineral wealth.

While the trend of industry is to the South and Southwest, industrial development of the Southwest has in reality only begun. Rapid transportation, the airplane, will do much to hasten this development.

That the Southwest is alive to possibilities of aviation is evidenced by facts set forth in a recent bulletin of the Department of Commerce showing that four Southwestern states, Texas, Oklahoma, Kansas and Missouri, have 16.7 per cent of the nation's airplanes. Texas ranks third in the number of transport pilots. Tulsa, Okla., for many months has led the cities of the country in air passenger traffic and the number of air transport lines in the Southwest is many times greater than in any other section.

As one studies past development and future possibilities of the Southwest, it becomes more than ever evident that this section is ideally situated to take full advantage of the airplane as the modern vehicle of transportation.

### Virginia Airport Committee

Richmond, Va.—The American Engineering Council, New York, in co-operation with the Bureau of Aeronautics of the Department of Commerce, is organizing more than 100 local committees for the study of airports. The work of the committees is linked with an investigation of the problems of airport drainage and surfacing which is being conducted by a general committee composed of members of the Council, the Bureau of Aeronautics and the American Road Builders' Association. Carl E. Grunsky of San Francisco, president of the Council, announces the appointment of committees throughout the South, with W. F. Woodson, division engineer of the Bureau of Surveys and Design, as chairman of the Richmond committee. Other members of this committee include L. S. Harding, Ivor Massey, E. T. Dennis and A. H. Pettigrew. Organization of the committees is the first step in a continuing program.

### Airplane Guide and Marker

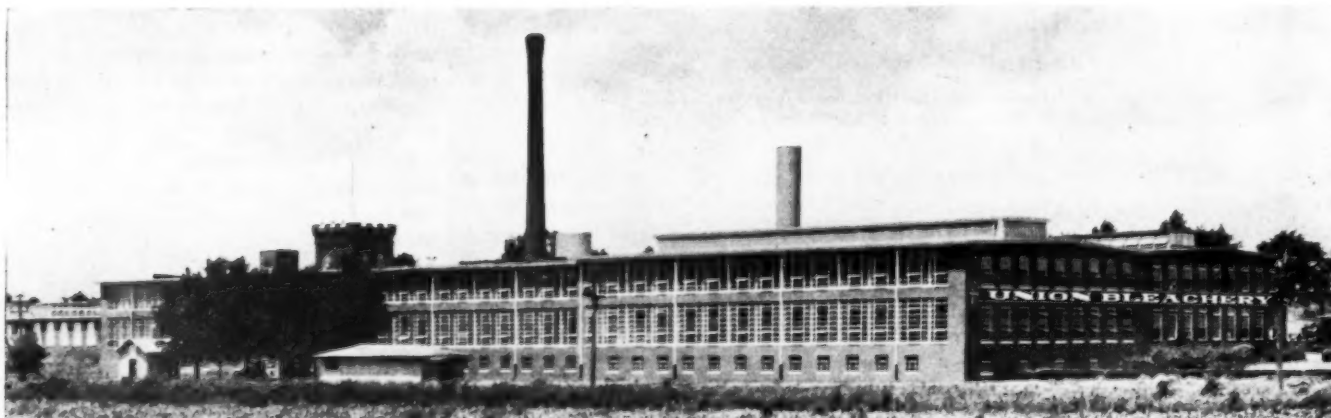
The Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., has developed a distinctive light for marking obstacles and guiding airplanes. These markers are composed of six U-shaped Neon tubes connected in series, the tubes being so connected that the marker will remain in service as long as one active tube is left. With

pedestal type mountings that may be bolted to any solid support, the marker is equipped with a transformer for operating on low voltages. When used for marking transmission towers or where high voltages are available, it may be connected directly across the line.

### 693,627 Pounds Air Mail in July

Washington, D. C.—Preliminary figures made public by the United States Postoffice Department reveal that a total of 693,627 pounds of air mail were carried during the month of July, an increase of 12,967 pounds as compared with the month of June. In pointing out the increase, Assistant Postmaster General Glover called attention to the fact that American business men are taking advantage of the opportunity to save time through the use of the air mail and are employing this method more and more. It was also pointed out that with the establishment of two additional Southern trans-continental air lines, bids for which will be opened this week, the importance of the air mail to business and commercial interests will be more generally shown and its more extensive use will follow, especially in the South. There are now 24 air mail routes in operation throughout the country, the Salt Lake-Pasco and the Pasco-Seattle routes having recently combined.

## South Carolina Bleachery Expands and Installs Power Plant

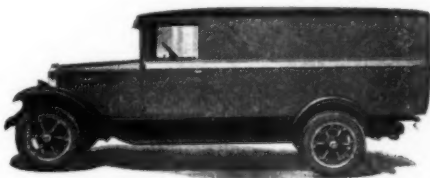


Extensive improvements have been made recently at the Union Bleachery, Greenville, S. C., of which Jno. W. Arrington is president. An addition with 70,000 square feet of floor space of slow burning mill construction, with daylight windows, features the new work. Additional space is provided for working as well as for new machinery to be installed as needed. The company installed also a turbo-electric generating plant to produce its own power requirements, which heretofore have been purchased. The plant consists of a 1500-kilowatt bleeder type turbine, the unit and all accessories being furnished by the Allis-Chalmers Manufacturing Co., Milwaukee, Wis. Revamping of steam piping throughout the plant was handled by C. M. Guest & Son, Anderson, S. C., and electrical wiring by Huntington & Guerry, Inc., Greenville. Potter & Shackelford, Greenville, had general construction contract and engineering details were handled by J. E. Sirrine & Co., of Greenville.

## NEW AND IMPROVED EQUIPMENT

### International Speed Truck

The International Harvester Company of America, Inc., Chicago, announces a new  $\frac{3}{4}$ -ton motor truck as the latest addition to its line of delivery trucks. The machine has a chromium-plated radiator, lamp rims and bumper strips, and is produced in a variety of finishes. It differs from its predecessors in wheel base and appearance and embodies a number of mechanical improvements, being equipped with a 4-cylinder engine, of  $3\frac{1}{2}$ -inch bore by a  $4\frac{1}{2}$ -inch



Delivery Truck Produced in a Variety of Color Finishes

stroke, developing 30.4 brake horsepower at 2000 r.p.m. A single plate clutch and improved transmission contribute to better road performance. The truck is provided with four-wheel, shoe-type internal expanding brakes and a cam-and-lever steering gear.

### Safety Lighting Cable

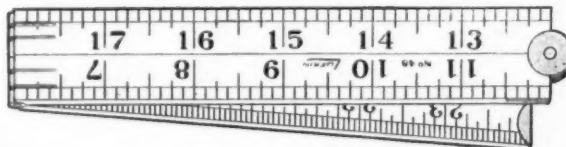
The Sullivan Machinery Company, Chicago, recently introduced Stringalite safety cable for underground and outdoor illumination, adding to its line of mining and industrial equipment. The cable was developed especially to withstand severe demands of underground lighting service for station, main level, sub-level, stope, tunnel, raise and trestle



"Stringalite", for Underground and Outdoor Illumination

lighting. Qualities which make it adaptable to this service also adapt it to service in quarries, open pits and other surface workings, in factory and power plant yards and on construction jobs. Safety and utility of a permanent installation, with the wiring simplicity and economy of a temporary job are

features emphasized. Stringalite is made solely for the Sullivan Machinery Company by the Rome Wire Company, Rome, N. Y. Stock lengths are 100 and 200 feet, with three lamp sockets to every 100-foot length, and connectors attached. Other lengths may be had also.



New Lufkin Rule

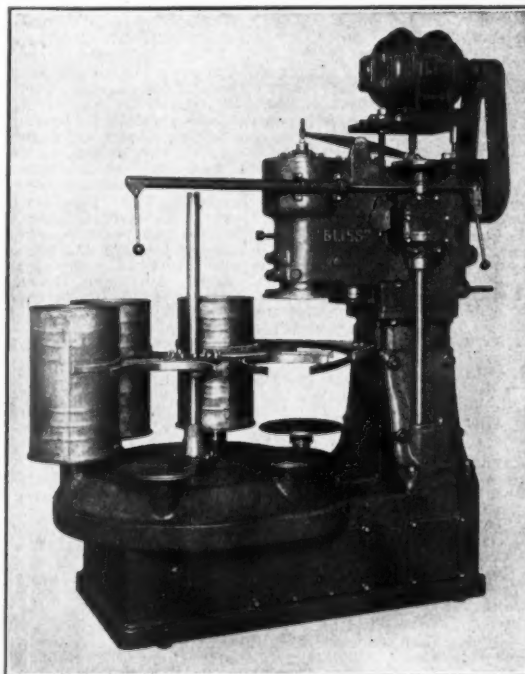
### Popular Priced Two-Foot Rule

To meet requirements of hardware and supply houses for a 2-foot, 4-fold wood rule to retail at 10 cents, the Lufkin Rule Co., Saginaw, Mich., has introduced a new rule, No. 48, made of hard maple with heavy-faced extra prominent markings and packed 1 dozen to the box. To serve those desiring to carry also a genuine boxwood rule, the company will continue manufacture of No. 651 (68), which is similar to the new rule.

### Double Seaming Machine

A new semi-automatic double seaming machine for round drums, pails, tubs and similar articles having a diameter not in excess of  $22\frac{1}{2}$  inches and not over 18 gauge in thickness, has been developed by the E. W. Bliss Company, Brooklyn, N. Y., manufacturers of pressed metal machinery, automatic can machinery, dies and special machinery. The machine has a self-contained seaming head bolted to a column, the latter having a machined front face to which may be gibbed the footstock or workholding knee. The head is a single box casting and carries the work spindle, driving shaft and roll slides, together with automatic feed mechanism for the latter. All fast running shafts are

mounted on ball or roller bearings, while the rolls, of specially selected steel, are double grooved and run on Timken bearings. Work spindle is mounted in a quill to allow the small vertical adjustment necessary to bring the chuck to the level of the seaming rolls. A system of change gears gives a range of 5 to 16 turns of the spindle for the first seaming roll and proportional differences in the time for the entire cycle. There are three types of feed for this machine, all using the standard seaming head. Type A has a single spindle footstock and is the simplest form; type B has a four station dial feed which will take work up to  $15\frac{1}{4}$  inches in diameter by 26 inches high, and type C has a dial for drum up to the full swing capacity of the machine.



Type C Bliss Seamer

### Water Supply for Texas Town

Pettus, Tex.—Work has been started on a water distribution system here by the Central Power and Light Co., San Antonio, which is expected to be completed within a few weeks. Provision will also be made to supply oil well rigs in the vicinity. The water will be obtained from a deep well and will be driven into the mains by a pump having a capacity of 350 gallons per minute. It will be safeguarded by a standpipe of 50,000 gallons capacity located on a hill north of town.

# CONSTRUCTION DEPARTMENT and NEW ENTERPRISES

Covering the initial announcements of new undertakings with additional information about enterprises previously mentioned. The date at the end of an item indicates preliminary facts were given in a previous issue.

When writing to a new firm or corporation the name of at least one of the incorporators should be placed on the envelope to expedite its handling by the local postoffice. Mail may be delayed unless complete address is given.

Building and Construction Proposed and Contracts Awarded; Manufacturing, Mining, Power, and Land Developments; Public Works; Transportation; Communication; Financial Enterprises; New Business Opportunities Reported in the Sixteen Southern States.

The Daily Construction Bulletin of the Manufacturers Record gives each business day advance news published in this weekly review. It is invaluable to those requiring prompt information. Subscription price \$40.00 a year.

## Airports, Airplane Plants, Etc.

Ala., Birmingham — Aeronautics Branch Dept. of Commerce, reported, announced will soon begin construction of airway from Birmingham to San Diego, Cal., via Fort Worth, El Paso, Douglas, Tucson and Phoenix.

D. C., Washington—Dept. of Commerce, Aeronautics Branch, announced following cities will establish airports: Kissimmee, Fla.; Frederick, Okla.; Greenville, Tenn.; Morristown, Tenn., and Huntington, W. Va.; Springfield, Mo.; Mexico, Mo.; Dunn, N. C.; reports: Springdale, Ark.; New Iberia, La.; following cities contemplate establishing air-drumright, Okla.; Fredericksburg, Tex.; McAllen, Tex.; Uvalde, Tex.

La., Shreveport—Cahn Electric Co., 708 Milam St., has contract for complete field lighting equipment for Class AA 1 airport; Crouse-Hinds Co., General Electric Co., both Schenectady, New York, and Graybar Electric Co., 420 Lexington Ave., equipment contractors. 8-21

Mo., Kansas City—Longren Aircraft, Inc., capital \$100,000, chartered; L. Murphy, 1228 W. 62nd St.

Mo., St. Louis—Phil D. C. Ball, Security Bldg., reported, acquired building and machinery of Ryan Aircraft Corp., Lambert St. Louis Field.

## Bridges, Culverts and Viaducts

### Proposed Construction

Ala., Mobile—State Highway Comsn. receives bids for 9 bridges. See Roads, Streets, Paving.

Fla., Orlando—Orange County Commrs., A. L. Wright, Road Supt., open bids Sept. 2 for following bridge material for building bridges on Project 31 over Second Creek and Tootoosahatchie Creek: 48,000 ft. b. m. creosoted lumber and 3600 ft. creosoted piling.

Fla., Pensacola—Escambia County Commrs., Winston E. Wheat, Engr., soon call bids for \$200,000 Lillian bridge; all concrete, all timber or timber trestling with conc. flooring. 7-17

La., Bastrop—Morehouse Parish Police Jury opens bids Sept. 2 for earth approaches in connection with Cory, Knox, Bonner and Perkins bridges. 7-17

La., Mansfield—Desoto Parish Police Jury opens bids Sept. 3 for bridge over 4-mile bayou, Buffalo road, Ward 5, 12,000 f. b. m. white or post oak lumber, 576 lin. ft. or post oak piling; J. S. Ament, Parish Engr.

La., Natchitoches—Natchitoches Parish Police Jury opens bids Sept. 8 for bridge across Little River.

Maryland—State Roads Comsn., L. H. Stewart, Secy., Baltimore, opens bids Sept. 3 for 2 bridges: Anne Arundel County—substructure, conc. floor, approaches etc., for grade elimination over Pennsylvania R. R. tracks at Severn, Cont. AA-75-7; Harford County—substructure for bridge on road, Churchville to McCann's Corner, over Deer Creek known as Priest Ford bridge, Cont. H-99-42; struc. steel superstructure for above mentioned Priest Ford Bridge, Cont. H-100-42.

Miss., Canton—Madison County Bd. of Supvrs. opens bids Sept. 2 for 300-ft. bridge in Dist. No. 2; W. H. Bradley, County Engr.

Miss., Columbus—Lowndes County Bd. of Supvrs., John J. Richards, Clk., open bids Sept. 4 for steel or creosote pile bridge, or steel and conc. bridge, Sampson Creek, Dist. No. 1.

Miss., Grenada—Grenada County Bd. of Supvrs., Jessie Thomason, Chancery Clk., opens bids Sept. 5 for 57 or more bridges, requiring following approx. quantities: 8000 f. b. m. untreated lumber, 270,000 f. b. m. treated lumber, 9000 lin. ft. treated piling.

Miss., Mayersville—Issaquena County Bd. of Supvrs. opens bids Sept. 1 for bridge over Bloats Bayou.

Miss., Tunica—Tunica County Bd. of Supvrs., L. C. Shannon, Clk., opens bids Sept. 1 for pile bridge across Beaver Dam Bayou (or northern end of Cypress Lake), 12 spans in length, 7 stringer.

N. C., Wilmington—State Highway Comsn., John D. Waldrop, Engr., opens bids Oct. 6 for bridge across Smith Creek, Route 40, to replace present span.

Oklahoma—State Highway Comsn. has low bids for 10 bridges. See Roads, Streets, Paving.

Okla., Clinton—St. Louis-San Francisco Ry., F. G. Jonah, Ch. Engr., St. Louis, Mo., build underpass near Clinton.

South Carolina—State Highway Dept., Ben M. Sawyer, Ch. Commr., Columbia, opens bids Sept. 4 for building 11 bridges and raising 2 bridges: Beaufort County—rein. conc. substructure of bridge over Whale Branch, Route 28, 2000 lin. ft. 16-in. rein. conc. piles, 2600 lin. ft. treated timber piles, 68,000 lb. rein. steel; superstructure of bridge over Whale Branch, Route 28, 51,000 lb. rein. steel, 358,000 lb. struc. steel and castings; Chester County—rein. conc. bridge over Fishing Creek, Route 9, 1400 cu. yd. excavation, 1100 cu. yd. class A conc. and 169,500 lb. rein. steel; raising existing creosoted timber bridge over Sandy River, Route 7, 3092 lb. hardware; Greenwood County—2 rein. bridges, Route 25, over Cuffytown Creek and one over branch near Kirksey, 100,000 lb. rein. conc., 250 tons riprap; Horry County—2 rein. conc. bridges, Route 40, near Green Sea, 1560 lin. ft. untreated timber piles, 95,761 lb. rein. steel; raising existing creosoted timber bridge in Crawford Swamp, Route 40; Lancaster County—rein. conc. bridge over Bear Creek, Route 26, 57,653 lb. rein. steel; Marlboro County—rein. conc. bridge over White's Creek, Route 1, 35,000 lb. rein. steel, 150 tons riprap; Newberry County—rein. conc. bridge over Indian Creek, Route 176, 2000 lin. ft. untreated timber piles, 138,500 lb. rein. steel.

Tenn., Knoxville—Following estimating on general contract in connection with Henley St. bridge, bids to be received Sept. 9 by City, George R. Dempster, Mgr.; Lutten Bridge Co., Mercantile Bldg., Knoxville; Atlantic Bridge Co., Jefferson Bldg., Greensboro, N. C.; Central Station Equipment Co., 114 Liberty St., New York; Stems-Helmets, Inc., St. Paul, Minn.; Whiting-Turner Construction Co., Stewart Bldg., Baltimore, Md.; MacDougald Construction Co., Peachtree Bldg., Atlanta, Ga.; Hardaway Construction Co., Georgia Home Bldg., Columbus, Ga.; A. Johnson Construction Co. and Fegles Construction Co.,

both Minneapolis, Minn.; Knoxville Bridge Co., Knoxville; Jones & Laughlin, Union Trust Bldg., Cincinnati, Ohio; McClintic-Marshall Co., Union Central Bldg., Cincinnati, Ohio; Wilson, Weesner C. Wilkerson, 202 W. Morella Ave., Knoxville; Southern Construction Co., 615 S. 11th St., Birmingham, Ala.; Nashville Bridge Co., foot of Skelly Ave., Nashville; W. W. Mynatt, Dir. of Public Service. 8-14

Tenn., Madisonville—See Roads, Streets, Paving.

Texas—State Highway Comsn., G. C. Wickline, State Bridge Engr., opens bids Sept. 16 for \$70,000 free bridge across Red River, Highway No. 51, connecting Quannah Tex., with El Dorado, Okla. 7-13

Tex., Sherman—Grayson County, J. Wilson, Asst. County Engr., plans \$70,000, 24-ft., steel overpass, Highway 6.

Tex., Wichita Falls—State Highway Comsn., G. G. Wickline, Bridge Engr., Austin, plans widening 3 conc. bridges, Highway No. 32, Wichita County.

Virginia—Norfolk & Western Ry. Co., W. P. Wiltsee, Ch. Engr., Roanoke, authorized building new abutment and lengthening bridge No. 349-A, Bristol, costing \$33,000, so highway may be built underneath; also eliminating 2 grade crossings between Blackstone and Wilson, Va.

Virginia—Dept. of Highways, C. S. Mulen, Ch. Engr., authorized by War Dept., Washington, to build bridge over Hampton Hall Creek, 2.8 mi. from Kinsale.

West Virginia—State Road Comsn., George E. White, Secy., Charleston, opens bids Sept. 9 for 3 bridges over Howards Creek, Greenbrier County; Bridge No. 1225, 130 ft. steel truss superstructure on conc. substructure; Bridge No. 1227, 2 90-ft. steel pony trusses; superstructure on conc. substructure; Bridge No. 1228, 4 50-ft. steel I-beam spans superstructure on conc. substructure.

West Virginia—State Road Comsn., receives bids for 3 bridges. See Roads, Streets, Paving.

W. Va., Keyser—Maryland State Roads Comsn., Baltimore, and West Virginia State Road Comsn., Charleston, replace bridge between Keyser and McCoole; 30 ft. wide with walkway.

W. Va., Lewisburg—State Road Comsn., George E. White, Secy., Charleston, opens bids Sept. 9 for North Caldwell Dverhead No. 1226, Greenbrier County; 2 40-ft. and one 45-ft. conc. deck girders on conc. substructure.

### Contracts Awarded

Georgia—State Highway Bd. let contract for widening 2 bridges. See Construction News—Roads, Streets, Paving.

Md., Baltimore—City, Bd. of Awards, let contract to Mullian Contracting Co., 3945 Greenmount Ave., at \$29,360 for Lee St. bridge; Nathan L. Smith, Highways Engr.

Miss., Oxford—Lafayette County Bd. of Supvrs., G. A. Woodward, Clk., let contract to D. C. Houston, Abbeville, for bridge 150 ft. long over Lee Creek, Beat 2, to L. C. Gann, at \$44,000, for 200-ft. bridge over Oliver Levee, Oxford and Delay road, Beat 5.

Miss., Vicksburg—City, S. S. Patterson, Clk., let contract to V. T. Zollinger for conc. bridge, South St.

Missouri—See Roads, Streets, Paving.

N. C., Hookerton—Greene County Bd. of Commrs., Snow Hill, reported, let contract to A. P. Gilbert, Greenville, for bridge over Contentnea Creek. 8-14

South Carolina—State Highway Dept., Ben M. Sawyer, Ch. Commr., Columbia, let contracts for following: Calhoun County—widening 3 rln. conc. bridges, at \$6398; McCormick County—rein. conc. bridge, \$7292; Lancaster County—6 rein. conc., struc. steel and timber bridges, at \$28,687, all to Palmer Construction Co., Florence; Colleton County—3 bridges, at \$25,111, Clements Construction Co., Charleston; Saluda-Newberry Counties—steel superstructure for bridges, Routes 19 and 392, at \$16,856 each, Roanoke Iron & Bridge Co., Roanoke, Va.; substructure for rein. conc. bridge, Route 19, C. Y. Thomason and G. A. Thompson & Co., Greenwood, \$90,833; bridge, Route 392, \$192,420, G. A. Thompson & Co.; Chesterfield County—2 rein. conc. bridges, \$12,295, P. Gilmore, Airport Road, Spartanburg; Bamberg-Orangeburg Counties, \$104,524, R. H. H. Blackwell, Kingsport, Tenn.; Greenwood County—overhead bridge, 113,175, C. Y. Thomason; Williamsburg County—4 bridges, \$32,251, C. T. Felix, Carolina Life Bldg., Columbia; rejected bids on rein. conc. bridge, Greenwood and Laurens Counties. 7-3

Tennessee—Dept. of Highways and Public Works let contracts for 18 bridges. See Roads, Streets, Paving.

Tex., Coleman—Gulf, Colorado & Santa Fe Ry. Co., F. Merritt, Ch. Engr., Galveston, let contract to McCall Engineering Co., Amicable Bldg., Waco, at \$50,000, for highway subway under tracks, including grading, conc. abutments, drainage culvert and 52-ft. steel railroad span. 7-31

### Canning and Packing Plants

Fla., Clearwater—Dilpako Packing & Canning Co., Inc., J. L. McKee, Pres., Detroit, Mich., erecting plant for packing and shipping of citrus fruits, also canning citrus fruits and juices; daily output 4 cars fresh fruit, 1 car canned products; 60x120 ft., frame, built-up roof; Albert Wallace, Contr.; Continental Can Co., Keyser Bldg., Baltimore, Md., and The Pfaunder Co., Rochester, New York, Mch. Contrs. 8-21

Fla., Tampa—Tom Huston, Eighth St., Columbus, Ga., reported, acquired 8 acres west side of Hillsborough River south of Michigan Ave., as site for plant to manufacture bottled fruit juice and frozen fruit juice; cost of building and equipment \$200,000.

Fla., Tampa—Scoville Canning Co., plans remodeling and repairing canning plant at Fig and Gilchrist Sts.

Texas—Thrift Packing Co., J. A. Cage, Pres., 3412 Harvard St., Dallas, reported, plans establishing canning plant in Athens, Jacksonville or Palestine; cost \$75,000.

### Clayworking Plants

Mo., St. Louis—Uthoff & McInroy, Inc., chartered; Thomas J. McInroy, Richmond Heights.

### Cotton Compresses and Gins

N. C., Pittsboro—Enterprise Mill, Inc., capital \$100,000, chartered; S. E. and J. D. Barbour.

Tex., Rosebud—Farmers Gin Co., capital \$50,000, chartered; L. C. Clark, J. C. Green.

Tex., Shamrock—Harrison-Smith Gin Co. chartered; W. C. Smith, Edwin Griffin. 7-10

### Cottonseed-Oil Mills

Ga., Savannah—Gordon Cotton Co., capital \$25,000, incorporated; G. A. Gordon, 10 E. Oglethorpe Ave.

Tenn., Dyersburg—Hammer-Braxton Gin Co., capital \$20,000, incorporated; L. D. Hammer J. T. Bratton.

### Drainage, Dredging and Irrigation

Louisiana—See Miscellaneous Construction.

Md., Baltimore—U. S. Engr. Office, Customhouse, let contract to Arundel Corp., Pier 2, Pratt St., for dredging, 1,174,341 cu. yd. material, Baltimore harbor; started. 7-10

Md., Baltimore—City, Bd. of Awards, let contract to Arundel Corp., Pier 2, Pratt St., at \$40,700, for maintenance dredging in Baltimore Harbor; Elmer E. Hammond, Harbor Engr. 8-14

Md., Baltimore—Bethlehem Shipbuilding Corp. let contract to Arundel Corp., Pier 2, Pratt St., for dredging 150,000 cu. yd. material from channel in front of plant, Key Highway.

Miss., Rolling Fork—Bd. of Commrs. of Otter Bayou Drainage Dist. opens bids Sept. 2 for excavating approx. 40,000 cu. yd. clean out; S. B. Lassco, Engr.

North Carolina—U. S. Engr. Office, Wilmington, has low bid from Arundel Corp., Pier 2, Pratt St., Baltimore, Md., at \$337,240, for Northeast Section, at \$334,138, for Southwest Section, Section III, Intracoastal Waterway, Beaufort to Cape Fear. 7-17

Tex., Brownwood—Brown County Water Improvement Dist. No. 1, D. W. Ross, Engr., plans receiving bids within 60 days for dam 8 mi. above city to provide water for city and for industrial and irrigation purposes; 770,000 cu. yd. semi-hydraulic earth fill, earth to be taken from spillway which will have channel 450 ft. wide at bottom, with maximum depth of 45 ft., dam to be 1600 ft. long on top and 85 ft. average height; place 26,000 sq. yd. rip rap with gravel blanket on upper face of dam and loose rock fill containing about 4000 cu. yd. will be deposited on lower toe part of drainage system; approx. 20,000 cu. yd. earth to be excavated for cut-off trench on axis of dam and 21,000 sq. ft. steel sheet piling will be driven in same; place two 12-ft. diam. conduits with self-closing gates in base of dam, conduits together with gate wells and gate house to involve placing about 6000 cu. yd. conc., mostly heavily reinforced; structure containing about 2500 cu. yd. mass conc. to be placed near lower end of open spillway channel; reservoir basin to have capacity of 125,000 acre ft. at spillway level; water to be conducted in conc. lined canal 11.6 ft. long to furnish city and to irrigate about 12,000 acres; \$2,500,000 available; R. A. Thompson, Consult. Engr., Dallas. 7-31

Tex., Houston—City, W. E. Monteith, Mayor, let contract to Carnegie Steel Co., Carnegie Bldg., Pittsburgh, Pa., for sheet piling for Buffalo Bayou channel straightening and Franklin Ave. extension. 8-14

Tex., San Benito—Cameron County Water Improvement Dist. No. 11 votes Sept. 11 on \$500,000 bonds for constructing additional canals; added 4500 acres to district; V. L. Conrad, Dist. Engr.

### Electric Light and Power

Electric light and power work in connection with many LAND DEVELOPMENT operations involves the expenditure of large sums of money. See that classification for details.

Ark., Little Rock—City Lighting Committee install additional street lights.

Ark., Paragould—City votes Sept. 21 on \$125,000 bonds for installation light and power plant; plans being prepared by W. A. Fuller Co., Engr., 2916 Shenandoah Ave., St. Louis, Mo. 8-14

D. C., Washington—Stone & Webster Engineering Corp., 49 Federal St., Boston, Mass., awarded following contracts in July on Benning power station for Potomac Electric Power Co.; boiler breechings and smoke flues, Connery & Co., Inc., Second and Luzerne Sts., Philadelphia, Pa.; bus structure, Lake Stone Co., Inc., 322 K St., N. W., Washington; building work approximately 60% completed. 7-31

Ga., Augusta—Allied Engineers, Inc., Gas & Electric Bldg., Atlanta, reported, have contract for changes and additions to building for Georgia Power Co.; 2 story and basement, brick walls.

Ga., Kingsland—Georgia Power Co., Atlanta, reported, remove electric plant from St. Simons Island; extend line to Woodbine, later extend to White Oak and Waverly.

Ga., Savannah—Savannah Electric and Power Co. erect sub-station on Lathrop Ave.

La., New Orleans—J. A. Petty & Sons, Inc., Audubon Bldg., reported, has contract for construction 1½ story, 33x150 ft., hollow tile and brick veneer building Poland & St. Claude Sts. for Rolling Stocks and Shop Dept. of New Orleans Public Service, Inc. 8-14

Md., Frederick—City, Lloyd C. Culler, Mayor, extend white way system on Market St. to Seventh and on W. Patrick St. to College Ave.

Missouri—Cities Service Co., 60 Wall St., New York, reported, plans high tension line,

cost \$350,000, between Springfield and Sedalia; line will tie into existing transmission line from Lake Taneycomb to Springfield; construction by Delta Construction Co., a subsidiary, with operating headquarters at Ozark Beach on Lake Taneycomb.

Mo., Bagnell—Stone & Webster Engineering Corp., 49 Federal St., Boston, Mass., awarded following contract in July on Osage Power plant nr. Bagnell for Union Light & Power Co., 12th and Locust Sts., St. Louis; reservoir clearing, Ayres & Hart, Helpin & Jackson and Moulder Wills Co., all Linn Creek; copper conductors, Anaconda Wire & Cable Co., 1912 Washington St., St. Louis; pine poles, Gulf States Creosoting Co., W. Pine St., Hattiesburg, Miss.; oil circuit breakers, General Electric Co., 84 State St., Boston, Mass.; 10 13,333/20,000 kv.-a transformers, General Electric Co., 84 State St., Boston, Mass.; 150 ton gantry crane, Whiting Corp., Syndicate Trust Bldg., St. Louis; excavation of plant about 75% completed, about 45% of all bids for electric power plant. 7-24

Mo., Chillicothe—Country Home Electric Co., chartered; A. J. Simpson, T. G. Campbell.

N. C., Lake Junaluska—Carolina Power & Light Co., Raleigh, reported, acquired electric distribution system, including electric properties of Haywood Electric Power Co.; will rebuild.

Okl., Altus—H. C. Flowers, reported, has contract for rebuilding burned light and power plant; 50x70 ft.

Tex., Stratford—West Texas Utilities Co., Abilene, reported, erect 1 story, brick, 24x60 ft., office and warehouse. 5-1

Va., Martinsville—City, reported, rejected all bids for electric light and power plant. 7-24

Va., Richmond—John T. Wilson Co., Inc., Mutual Bldg., has contract for warehouse for Virginia Electric Light and Power Co.; 100x110 ft.; 3-story and basement; conc. and steel; conc. floors; comp. roof; cost \$180,000; W. G. Winter, 609 E. Clay St., contract for plumbing; struc. steel, Virginia Bridge & Iron Co., Roanoke; ornamental iron, Norfolk Iron & Wire Works, Norfolk; brick, W. L. Cross, 1903 Grove Ave., steel sash, Earnest Bros., 805 E. Franklin St.; reinforcements, Virginia Steel Co.; roof and sheet metal, N. W. Martin & Bros., both 17th & Dock St.; Carneal, Johnston & Wright, Seventh and Franklin Sts., Architects, all Richmond. 7-24

W. Va., Wheeling—Island Improvement Assn., Carl Jensen, Pres., 116 Virginia St., receives bids Sept. 15 for proposed white way system.

### Garages and Filling Stations

Ala., Birmingham—Shell Petroleum Co., Martin Bldg., reported, let contract to Reid & Lowe, 2109 N. 14th St. for excavating for bulk distributing station and office building N. Twenty-eighth St. and 9th Ave.

Ala., Gadsden—W. H. Mayben & Son, Chestnut St., has contract for garage for C. A. East, R. F. D., Glencoe, 249x100 ft.; 1 story; brick; rein. conc. and terrazzo floors; built-up roof; cost \$32,000; Sutherland Motor Co., Gadsden, Equipment Contrs.; Paul W. Hofferbert, Archt., American Natl. Bank Bldg. 8-21

Ark., Blytheville—Denton Chevrolet Co., W. I. Denton, reported, rebuild burned garage; cost \$40,000; brick, conc. and steel; 1 and 2 story and basement; tile and wood floors. 8-14

Ark., Wilson—R. E. Lee having plans prepared by George Mahan, Jr., Manhattan Bank Bldg., Memphis, Tenn., for garage; brick and stucco; 150x75 ft.

Fla., Miami—Orange State Oil Co., 368 N. E. 5th Terrace, erect filling station Fifty-Fourth St. and Biscayne Blvd.

Fla., Vero Beach—Davis Motor Sales Co., incorporated; L. E. Davis, A. Adams.

Ga., East Point—The Texas Co., Houston, Tex., receives bids Aug. 30 for service station; brick walls; comp. roof, conc. foundations; following contractors estimating: C. R. Justl, 101 Marietta St., and A. R. Cleveland, 646 Brookline St., both Atlanta; W. E. Moreland, 431 W. Walker St., and Geo. H. Sparke, 209 W. Forrest St., both East Point.

Ky., St. Helena—St. Helena Motor Co. increased capital to \$25,000.

La., Baton Rouge—Davis Motor Co., Inc., capital \$25,000, incorporated; Wm. M. Davis, Jefferson Highway.

La., New Orleans—Bunning Realty Co., reported, let contract to O. M. Gwin Const. Co., 3501 Fern St., for garage 201 Dryades St.

La., Shreveport—Strubbe McConnell, 3415 Velva St., low bidder for hollow tile filling station; plans by Edw. F. Neild.

Md., Baltimore—Sarah J. Tames, 3000 Hamilton Ave., will erect garage Harford and Wisteria Aves., to be occupied by Shell Eastern Petroleum Products, Court Square Bldg.; Northeastern Construction Co., 6 W. Madison St., Contr.

Mo., Kansas City—Scarritt Estate Co., 2534 McGee St., Mifflin Way, let contract to Lawrence C. Gray, 409 Pioneer Trust Co. Bldg., at \$19,450, for garage; brick and steel; 49x240 ft.; conc. floors; tar and gravel roof; cost \$23,000; C. H. Swanson, Archt.; 1125 Sandusky Ave. 8-21

Mo., Kansas City—Rumsel-Martin Corp., capital \$75,000, incorporated; J. Frank Martin, 1257 W. 61st St.

Mo., Kansas City—Phillips Petroleum Co., Bartlesville, Okla., reported, construct filling station, N. W. cor. Twenty-seventh St. and Brooklyn Ave.

Mo., St. Louis—Pevely Dairy Co., Grand & Chouteau Ave., let contract to Fruin-Colnon Cont. Co., 502 Merchants Laclede Bldg., for \$85,000 garage; 1 story; brick walls; steel; conc. floors; wrought iron sash; wood sliding doors; 300x134 ft. 8-21

N. C., Linville—Lambert Service Station, Inc., chartered; J. W. Morton, E. H. Lambert.

Mo., St. Louis—Lubrite Refining Corp., 3504 Washington St., reported, has plans by Arch Albert, Archt., Syndicate Trust Bldg., for gasoline filling and service station at Clayton and Big Bend Blvd.; English half timber with stucco front, brick base; clay tile roof; stucco tower 50 feet high with iron balcony; building will contain waiting rooms and rest rooms; basement under west wing contain all units of mechanical equipment.

N. C., Asheville—Harry Blomberg, owner Harry's Motor Inn, 48 N. Market St., erecting 1 story and basement storage garage on Haywood St.; 74x150 ft.; Colonial design; steel work by Dave Steel Co., Roberts St.; S. Grant Alexander, Archt., 113 College St.; cost \$20,000.

N. C., Asheville—Randolph Motor Co., capital \$25,000, incorporated; Fred C. Page, Asheville; H. A. Page, Jr., Aberdeen.

N. C., Gastonia—L. M. Lattimore, Inc., capital \$100,000, chartered; E. B. Denny, First Natl. Bank Bldg.

N. C., Greensboro—Dr. J. H. Boyles, 1510 W. Market St., erect brick service station and garage 306 Belmeade St.

Okla., Bartlesville—National Refining Co., Fourth and Jennings Sts., reported, rebuild burned office building and filling station.

Tenn., Memphis—Bob Rust Motors, Inc., capital \$25,000, chartered; R. E. Bell, 1750 Peach St.

Tenn., Memphis—Rust Motor Co., E. O. Bailey, 120 Monroe St., let contract to Levin L. Diehl, 1663 Forrest St., for garage; 100x75 ft.; brick and steel; cement and terrazo floors; tar and gravel roof; cost \$18,000; Joe T. Wallace, Archt., Bank of Commerce Bldg.

Texas—Tinnall Products Co., Alfred Tinnally, Pres., Builders Exchange Bldg., San Antonio, reported, erect filling station at San Antonio, Houston, Dallas, Fort Worth, Amarillo and El Paso; stations designed by Kelwood Co., Travis Bldg., San Antonio; fireproof construction; masonry and steel; work to begin in 60 days. 8-14

Tex., Fort Worth—Austin West Texas Co., Inc., capital \$12,000, chartered; T. A. Compton, 911 E. Cannon St.

Tex., Fort Worth—Thos. S. Byrne, Inc., Fort Worth Natl. Bank Bldg., has contract at \$23,600 for garage First and Throckmorton Sts., for Leonard Bros., 111 N. Houston St.; 95x145 ft.; 1 story.

Tex., Galveston—Lem Brothers have contract for brick filling station 3901 S St. for Magnolia Petroleum Co., Magnolia Bldg., Dallas. 6-26

Tex., Galveston—Humble Oil Co., Humble Bldg., Houston, erect brick and hollow tile filling station 3228 Broadway; Johnson Brothers, Contrs., Guaranty Bldg.

Tex., Houston—C. R. Berry, Marine Bank Bldg., will erect 2 story, rein. conc. building 517 Austin St., cost \$20,000, will lease to Jack Neal Nash Motors Co., 1517 Austin St.

Tex., Houston—B. W. Holtz, 1214 Barkdull St., has contract for filling station, 4619 Main St. for Gulf Refining Co., Gulf Bldg.

Tex., Kerrville—Kerrville Buick Co., incorporated; Sid Peterson, Miller Harwood.

Tex., Victoria—Herman Vogt let contract to Ed Wagner for stucco filling station on Highway No. 12.

Va., Richmond—National Garage, Inc., capital \$25,000, chartered; J. M. Dickerson.

## Gas and Oil Enterprises

Alabama—Alabama Natural Gas Corp., affiliated company of Southern Natural Gas Corp., Watts Bldg., Birmingham, reported, begin work on distribution system at Opelika, Aug. 25; at Wetumpka, Sept. 1; Auburn, Sept. 3; Tuskegee, Sept. 8; cost about \$200,000. 8-7

D. C., Washington—Washington Gas Light Co., George A. C. Wood, Pres., reported, announced to Public Utilities Comsn. that contract has been agreed on between Washington Gas Light Co. and a subsidiary of Columbia Gas & Electric Corp., 61 Broadway, New York, for supply of natural gas; may necessitate construction of pipe line at cost of \$200,000 from District line across city to the eastern plant from which gas will be distributed; gas by-products plant may also be built as part of project; Columbia subsidiary will probably turn gas over to a subsidiary operating in Montgomery County, Md., about 2 miles from Rockville; Montgomery County company will lay pipe into District line.

Fla., St. Petersburg—City receives bids Sept. 8 on approximately \$80,000 equipment for gas plant.

Kentucky—Central Indiana Gas Co., subsidiary of Central Public Service Corp., 105 W. Adams St., Chicago, Ill., reported, let contract to Youngstown Sheet & Tube Corp., Youngstown, O., at \$2,500,000 for 35,000 tons of 18-in. electric welded pipe for 200 mile natural gas pipe line from natural gas fields in Kentucky to territory served by company. 8-21

Kentucky—Public Service Engineering Co., wholly owned subsidiary of Central Public Service Corp., Chicago, Ill., reported, opened office Room 713, Guaranty Bank Bldg., Lexington, Ky., preparatory to letting contracts for drilling 10 test wells in Eastern Kentucky gas fields and construction of pipe line to its Indiana distributing territory; contemplated line 200 miles long, cost \$12,000,000. 8-21

Ky., Barbourville—Main-Reneau Oil & Gas Development Co., capital \$50,000, chartered; C. A. Main, A. C. Herd.

Ky., Lexington—Public Service Engineering Co., Guaranty Bank Bldg., Lexington, and division headquarters, Chicago, Ill., subsidiary of Central Public Service Corp., 105 W. Adams St., Chicago, Ill., reported, acquired from Kentucky-West Virginia Gas Co. 132,000 acres gas lands in southeastern Kentucky gas field for immediate development; plans drilling approximately 100 wells this year.

Ky., Beattyville—Hell Creek Kentucky Oil Co., Inc., chartered; Wm. B. May, Sr., John C. Bass.

Ky., Paducah—City, Ernest Lackey, Mayor, will sell 20 yr. natural gas franchise on Sept. 15th.

La., Bogalusa—Bogalusa Gas Co., Inc., B. H. Buck, V. P., reported, granted 25 yr. gas franchise.

La., Covington—Town Council, reported, granted gas franchise to Robt. S. Phifer, 145 Battle Hill Place and M. L. Culley, Standard Life Bldg., both Jackson, Miss., soon begin work on pipe line. 7-17

La., Jennings—City votes Sept. 16 on ratifying granting franchise to Moody-Seagraves Gas Co., Inc., Esperson Bldg., Houston, Tex. 8-14

Miss., Bay St. Louis—City voted gas franchise to Gulf States Natural Gas Co., Standard Life Bldg., Jackson, subject to vote by people Sept. 16. 7-17

Missouri—City of Wellsville votes Sept. 2 on granting gas franchise to Missouri Power and Light Co., Jefferson City; Laddonia, on Sept. 3; Sturgeon on Sept. 4 and Hallsville Sept. 5; cities of Centralia, Vandalia and Mexico will vote later, date not decided; city of Farber approved franchise.

Mo., Farber—Missouri Power & Light Co., Jefferson City, reported, applied to Public Service Comsn., Jefferson City, for permission to construct and operate gas distribution plant for artificial or natural gas, under 20 yr. franchise.

Mo., Kansas City—Phillips Petroleum Co., Bartlesville, Okla., reported, acquired 126 acres in Blue Valley at Forty-third St. and Topping Ave. as site for tank farm, initial facilities providing for 50 tank cars daily; company is constructing gasoline pipe line from Texas Panhandle to outlets in Kansas City, St. Louis and Wichita; distribution line to Kansas City will branch off from Harrisonville, Mo., where site has been purchased for pumping station. 7-24

Mo., Kansas City—General Utilities Co., 924 Oak St., reported, has under construction pipe line from Avondale gas fields on outskirts of North Kansas City to Liberty; will expend about \$1,000,000; line will serve suburban district; also include natural gas service for Smithville, Plattsburg, Lathrop and Cameron and other communities in Clay and Clinton counties; has gas franchise.

Mo., Tipton — Thomas F. Bowdern, 729 Union Blvd., St. Louis, has contract for gas distribution system; open bids Nov. 1 for construction.

Mo., Warrensburg—Gas Service Co., 60 Wall St., New York, reported, erect and operate \$101,000 gas plant; has 20 yr. franchise. 8-7

N. C., Charlotte — Payne Petroleum Co. chartered; C. A. Cochran, Law Bldg.

Okla., Oklahoma City—Altitude Petroleum Co., Perine Bldg., reported, construct \$250,000 oil refinery.

Oklahoma — Southwestern Natural Gas Co., subsidiary of Appalachian Gas Corp., 46 Cedar St., New York, soon begin construction of Sand Springs and West Tulsa laterals; completing 112 mile Tulsa-Muskogee pipeline. 7-17

Okla., Tulsa—Ohio Oil Co., Findlay, Ohio, reported, completed negotiations for acquisition of Transcontinental Oil Co., Thompson Bldg. 7-17

S. C., Bishopville—Bishopville Petroleum Co., J. W. White, will erect station on Main St.; 20x35 ft.; cost \$25,000; install equipment; Service Station Equipment Co., 300 Enterprise St., Bryan, Ohio; Wayne Pump Co., Fort Wayne, Ind., and Norfolk Tank Co., Hampton Blvd. and 25th St., Mch. Contrs. 8-21

Tenn., Chattanooga—Campbell Oil Co., capital \$15,000, chartered; Siles Williams, James Bldg.

Tenn., Memphis — Memphis Natural Gas Co., through D. C. Shaffer, Gen. Mgr., Commercial Bank Bldg., announced beginning of work of laying 50 mile pipe line for natural gas from main Louisiana-Memphis line to various communities in Mississippi, including Leland, Indianola, Morehead, Ittabena and Greenwood; Memphis Natural Gas Co. will supervise engineering in connection with new line, actual construction work by Phoenix Utility Co., construction unit of Mississippi Power & Light Co., Jackson, Miss.; line will connect with main transmission line at point near Greenville, Miss.; 8-in. in diam., with electrically welded joints and with Dressler coupling every 500 ft.; clearing of 30 ft. right of way nearing completion; line will cross Bogue Phalilah, Sunflower and Yazoo Rivers; multiple crossings will be used at river consisting of two 6-in. lines anchored with 750 lb. river clamps; company plans marketing 1,000,000 cu. ft. of natural gas annually; part of cost of line will be borne by Memphis Natural Gas Co. and Mississippi Power & Light Co. 8-14

Tenn., Memphis—Standard Oil Co. of Louisiana, Baton Rouge, advises only construction at present time at Memphis is installation of equipment for fire protection. 8-21

Tenn., Nashville—Pan-American Petroleum Corp. of Tennessee, 11th Ave., North, reported, let contract to Boone Construction Co., Independent Bldg., for wholesale distribution plant Twenty-second Ave. N. and Clifton Rd.; plant will consist of warehouse and garage, 1 story each, conc. blocks; cost \$40,000.

Tenn., Pulaski—Tennessee Gas Co., 22 W. Monroe St., Chicago, Ill., reported, granted gas franchise.

Tenn., Union City—Tennessee Gas Co., 22 W. Monroe St., Chicago, Ill., and N. First St., Union City, reported, starting work on gas plant under supervision of W. C. Kelly. 6-19

Tex., Beaumont — Royalty Corp., capital \$50,000, incorporated; W. C. Tyrrell, Caldwell.

Tex., Crystal City — Texas Gas Utilities Co., subsidiary of Appalachian Gas Corp., 46 Cedar St., New York, will soon begin work on Crystal City natural gas pipe line; completed Rycade field-Eagle Pass line. 8-14

Tex., Fort Worth—Reagan Oil Properties, Inc., chartered; Daniel V. Reagan, 614 W. Fourth St.

Tex., McCamey — Charlesworth-Messenger Oil Co., capital \$48,000, incorporated; Roy Charlesworth, W. E. Anderson.

Tex., Fort Worth—Sinclair Consolidated Oil Corp., Sinclair Oil Bldg., 45 Nassau St., New York, advises have made no program which includes rebuilding of refinery at Fort Worth, as lately noted. 8-14

Tex., San Marcos—United Gas Co., Houston, reported, let contract to Texas Construction Co., Deepwater, Houston, for construction of gas line to be built to San Marcos to furnish additional supply for Austin and intermediate points; connecting with present line here, it will furnish loop line, giving to Austin, San Marcos, New Brunsfels and Seguin double present supply; line will be of 12-in. pipe and will connect with 20-in. main at Converse.

Virginia—Virginia Gas & Utilities Co., Virginia subsidiary of Atlanta Gas Co., Bulbitt Bldg., Philadelphia, Pa., started work on erection Butane gas generating plants at Pulaski and Radford. 5-15

Va., Alexandria—City Council receives bids Sept. 11 for city gas plant and distributing system and 30 yr. franchise; population 25,000; information on application to Wallace Lawrence, City Mgr.

West Virginia—Edw. R. Berry, of Twin States Natural Gas Co., Charleston, reported, completed negotiations for acquisition of controlling interest in Midland Natural Gas Co., 46 Cedar St., New York; in addition will acquire further holdings adjacent to present holdings in West Virginia and Kentucky; Midland Natural Gas owns and operates gas properties in Pennsylvania and West Virginia; upon completion of negotiations Twin States Natural Gas Co. will own and operate directly or through subsidiaries, natural gas properties totalling more than 75,000 acres in Pennsylvania, Kentucky and West Virginia; financing to provide for proposed merger and expansion program will be through issuance of short-term debentures and additional Class A common stock.

W. Va., Charleston—Bettalee Development Co., capital \$50,000, chartered; H. W. Holesapple, 418 Columbia Ave., Charleston; C. A. Yeager, Manchester, Ky.

### Ice and Cold-Storage Plants

Fla., Fort Lauderdale—John A. Prescott, reported, plans construction pre-cooling and storage plant at Port Everglades; applied to Port Comms. for permission to lease site 200x200 ft. adjacent to north side of slip and adjoining terminal railroad; building and equipment to cost \$75,000, 200x75 ft.; 24-car capacity with five 2-car units in pre-cooling plant, one 2-car in fish and meat dept., two 6-car in holding room. 4-24

Fla., Winter Haven—D. H. Gilbert, Monticello reported, acquired plant building at Fourth St. and Howard Ave.; will remodel.

### Land Development

D. C., Washington—Hugo Herfurth, Jr., Inc., District Natl. Bank Bldg., submitted low bid at \$9870 for demolishing buildings in Poli's Theatre block, in connection with Treasury Dept's project of converting block into park; G. H. Shartzer, Dayton, O., low bidder at \$5000 for filling, grading and seeding site.

Fla., Jacksonville—Elm Land Co., incorporated; A. Cockrell, 1931 Riverside Ave.

Ky., Hartford—Hartford Development Co. chartered; John W. Bibb, Guy Hanney.

Fla., Eustis—General Citrus Fruit Corp., J. C. Pereno, Congress Bldg., Miami, developing 30 acres citrus fruit trees.

Fla., Eustis—Tilson-River Fruit Co., incorporated; C. A. Vaughn, C. E. Duncan.

Fla., Fort Lauderdale—Olsson & Co., Inc., chartered; J. Olsson, C. Gullstrom.

La., Minerva—L. J. Becker, Crescent-Magnolia Farms, Inc., has 1960 acres; develop 1400 acres truck farms, poultry, etc.; subdivide number of acres; Charles Brown, Engr. 8-14

La., New Orleans—Union Realty Co., Inc., capital \$100,000, chartered; James W. Billingsley, 702 Interstate Bldg.

Md., Baltimore—Torreo Construction Co., 2319 E. Fayette St., incorporated; Philip C. Friese, First Natl. Bank Bldg.

Md., Chevy Chase—National Miniature Golf Clubs, Inc., 2 W. Blackthorne St.; chartered; Joseph Cranford, Wm. L. Turner.

Md., Mt. Rainier—Woodbridge Realty Co., Inc., 3509 Rhode Island Ave., chartered; Robt. W. Werth, 2377 Rhode Island Ave., N. E., both Washington, D. C.

Miss., Biloxi—City, John J. Kennedy, Mayor, reported, plans acquiring eastern half of Ship Island for development parks and playgrounds.

Mo., Kansas City—Park Comsn. submitted to Civic Improvement Committee following recommendations for improvements: bond issues to total \$10,000,000; acquisition of land and development of Swope Park; extension of Blue Ridge boulevard; addition to bathing facilities at lagoon; Winner Rd. viaduct; development Brush Creek parkway; improvement playground areas; Jacob L. Loose Memorial Park; acquisition of additional lands for playgrounds; improvements of the Paseo; viaduct on Thirty-ninth St.; open air theatre and stadium; Belmont Blvd. Viaduct; etc.

N. C., Asheville—Biltmore Realty Co., capital \$100,000, incorporated; George W. Craig, Flat Iron Bldg.

N. C., Asheville—West Asheville Colored Cemetery, James Young, 31 Hildebrand St., develop tract land adjoining Green Hill Cemetery.

N. C., Hendersonville—Hendersonville Golf Driving Range, Inc., chartered; J. Mack and C. M. Rodes.

N. C., Charlotte—City, reported, plans acquiring 88 acres on west side of Stonewall Rd. for development of cemetery; may issue bonds.

S. C., Greenville—John Cushman, 301 W. Prentiss Ave., and Dave Ferguson, Oregon St., construct 9 hole golf course Cleveland Park; city approved petition.

Tex., Brownsville—R. A. Porter develop 800 acres in citrus and subdivision.

Tex., Brownsville—Earl C. Sams develop 1900 acres in citrus fruits.

Tex., Houston—G. and S. Realty Co. chartered; Leon Gordon, 2112 Wentworth St.

Tex., Houston—Geo. Q. Bruce & Son, has option on several hundred acres at Deepwater; develop townsite; install water works, grading and shelling of streets, etc.

Tex., Mercedes—Mercedes Development Co., capital \$60,000, incorporated; F. W. Perkins, E. B. Harrell.

Tex., McAllen—W. D. Holterman, Fort Wayne, Ind., reported, acquired 88 acres, will subdivide.

Va., Norfolk—Rosemont Development Corp., capital \$15,000, chartered J. C. Brooks, Metropolitan Bank Bldg.

Va., Norfolk—Army Base Golf Course, Inc., capital \$50,000, chartered; James S. Barry, 9½ St.

W. Va., Parkersburg—Lincoln Realty Co., incorporated; H. C. Work, 1135 Market St.

### Lumber Enterprises

Fla., Gulf Hammock—Paterson-McInnis Lumber Co., A. N. McInnis, V. P. and Gen. Mgr., Gulf Hammock, reported, acquired timber holdings and manufacturing plant of Grove-Dowling Hardwood Co., Gulf Hammock; plans improvements, including 8 ft. band saw mill.

Fla., Jacksonville—Interstate Coöperage Co., 1933 Enterprise St., rebuild burned plant.

Fla., Orlando—P. & B. Crate Co. incorporated; C. M. Batey, 1316 E. Robinson St.

Tex., Uvalde—Mayhew Lumber Co., increased capital \$200,000 to \$300,000.

### Mining

N. C., Plumtree—Avery Mining Co., Inc., capital \$50,000, chartered; Harris H. and W. T. Sanders.

### Miscellaneous Construction

Ga., Hamilton—Cason J. Callaway, La Grange, acquired Blue Springs property, approx. 1000 acres and additional 1500 acres; plans constructing fishing lake.

Louisiana—Caddo Levee Dist. Comms., Court House, Shreveport, open bids Sept. 17 for improving drainage, Section 1, Big Willow Pass to Gilmer Ditch, 4½ mi., 825,000 cu. yd.; repairs to bank protection, right bank Red River at following bends: Havana, Corner Place, Cairo, Cash Point, Twelve Mile Bayou-Shreves Island, White Hall; also for cutting weeds and clearing several levees.

Louisiana—Bd. of State Engrs., Courthouse Bldg., New Orleans, will call new bids for following bank protection work, Red River: Repairs to existing structures, Bossier Parish, Cat Island Bend project, new mattress above head of dike No. 1, repair mattress to head of dike 2 and renewal of several screen poles and sheathing boards on dykes 1 and 2, Honore Bend, 300 lin. ft. new permeable 3-row timber structures, head of dike 2, straightening and bracing part of dike 1, renewing screen poles and sheathing boards on dykes 1 and 2; withdrew bids on Thompson, Lacey Bayou and Van Hoose. 8-14

Louisiana—Bd. of State Engrs., Courthouse Bldg., New Orleans, let following levee contracts on Red River: Dixie Gardens, 2000 ft. long, 23,000 cu. yd., Adair & Hudson, Dixie, La., at 18.4 cents per cu. yd.; Wild Lucia-Crescent, 61,300 cu. yd., Robinson, Construction Co., Hossston, at 18.4 cents per cu. yd.; Unl, 30,200 cu. yd., Ernest L. McCain, 2204 Fairfield Ave., Shreveport, at 19¼ cents per cu. yd.; Robson, 63,000 cu. yd., 22¼ cents per cu. yd.; Hollingsworth, 15,300 cu. yd., and Chalk Level, 51,500 cu. yd., J. T. Granger, St. Joe, 12.73 cents per cu. yd.; has low bid from Woods Bros. Construction Co.,

Lincoln, Neb., for bank protection Hervey Canal Bend, at \$55,650, for 7 current retards approx. 1050 lin. ft., and at \$55,659, for 7 permeable crib deflection spurs, approx. 1050 lin. ft. long, bids under advisement. 8-14

Md., Ocean City—State Highway Comsn., L. H. Steuart, Secy., Baltimore, has low bid from George E. Shockley, Rehoboth Beach, Del., at \$9525, for jetties. 8-14

Missouri—U. S. Engr. Office, Rock Island, Ill., opens bids Sept. 8 for constructing about 1100 lin. ft. revetment near mouth of Fabius River-Marion County Drainage Dist.

Mo., St. Louis—See Railways.

Tenn., Memphis—Massman Construction Co., 519 American Bank Building, Kansas City, Missouri, has contract at \$150,000 for river bank protection for St. Louis-San Francisco Ry. Co., F. G. Jonah, Ch. Engr., St. Louis, Mo., and Arkansas & Memphis Ry. Bridge & Terminal Co., along Mississippi River; includes placing willow mattresses and rip rap around piers of 2 bridges.

Tex., Jasper—Texas Game, Fish and Oyster Comsn., Wm. J. Tucker, Exec. Secy., Austin, opens bids Sept. 6 (extended date) for ponds for fish hatchery; includes following approx. quantities: 70 acres clearing and grubbing 75,000 cu. yd. earth excavation, 2000 cu. yd. earth excavation overhaul 100 ft.; 1000 cu. yd. excavation overhaul 200 ft., 230 cu. yd. conc., 2250 lin. ft. 6-in. c. i. pipe, 420 lin. ft. 8-in. c. i. pipe, 320 lin. ft. 8-in. cor. iron pipe, 80 lin. ft. 30-in. cor. iron pipe; Joe Marks, Engrs., Jasper. 8-7

Tenn., Memphis—Memphis Harbor Commission, J. B. Edgar, Chmn., has low bid from F. S. Neely, 669 Maury St., at \$71,246, for bank stabilization, Vance to Georgia St., known as Section 4.

Tenn., Memphis—U. S. Engr. Office, McCall Bldg., let contract to J. J. McCaughey and States Contracting Co., both 205 W. Wacker Drive, Chicago, Ill., at \$19,408, for Brewer Lake outlet structure, controlled spillway structure and conc. culvert under U. S. Highway 60.

Va., Cape Charles—Town, reported, deeded to Peninsular Ferry Co. 5 acres of property on water front as site for terminal; G. Hubbard Massey, Dickson Bldg., Norfolk, Const. Engr. for Peninsular Terminal Corp., under same ownership, has bids in for construction; preliminary plans include terminal covering 10 acres, 5 acres of which will be filled in land; cost \$100,000, not including buildings and warehouses; proposed terminal will serve as municipal and public dock, with warehouses and storage plants; ferry to use about 1/3 space; terminal will have ice plant, fish storage plant, coöperage plant for manufacture barrels, boxes and crating and warehouses; fuel oil station will be built to serve automobile trucks and ferry; contract for terminal will consist of building 1400 ft. of creosoted timber bulkhead, 200,000 cu. yds. dredging, 8800 sq. yds. conc. pavement and 5000 ft. of curbing and gutters; J. Brooks Mapp and W. A. Dickinson, Pres. and Sec. of Peninsular Terminal Corp.; plans for terminal for ferry line in Norfolk not decided; will probably be complete in 10 days and bids will be invited. 7-17

### Miscellaneous Enterprises

Ark., Arkadelphia—Daily Siftings Herald, reported, rebuild plant burned at loss of \$60,000.

Ark., Fort Smith—Mo-Ark Oxygen Co., L. G. Good, Mgr., 1001 Wheeler St., plans manufacture of nitrogen; has installed equipment for manufacture oxygen at cost of \$50,000.

Ark., Hot Springs—Fountain Lake Corp., incorporated; Lewis Hays, Community Bank Bldg., Hot Springs; A. J. Scull, 2109 Marshall St., Little Rock.

D. C., Washington—Boyle-Robertson, Inc., Evans Bldg., contractor for manufacturing plant, 910 Franklin St., N. E., for Stone Straw Co., 30 O St., N. E., advises following contracts placed: Conc. work, Fred Drew Co., 2539 Pennsylvania Ave., N. W.; brick work, R. E. Milor Co., 14th and G Sts., N. W.; steel windows, David Lupton Sons Co., Shoreham Bldg.; ornamental and miscellaneous iron, Fred S. Gichner, 214 O St., N. W.; struc. steel, Barber & Ross, 11th and G Sts., N. W.; painting, F. L. Campbell, 1602 E Sts., S. E.; elevators, General Elevator Co., 1200 15th St., N. W.; sprinkler system, Grinnell Co., Providence, R. I.; heating, Morris & Egan, 304 13th St. N. W.; plumbing, Joe High, Inc., 1215 13th St. N. W.; electrical work, Central Armature Works, 625 O St. N. W.; waterproofing, Washington Ply-Rite Co., Hill Bldg.; glazing, Pittsburgh Plate Glass Co., Fourth and Channing Sts., N. E. 7-17

Fla., Fort Lauderdale—Powell Brothers, Inc., chartered; J. S. Powell, 800 S. E. Fifth Court.

Fla., Cocoa—Henry W. Ewing, 10616 Prospect Ave., Chicago, Ill., and Cocoa, let contract for extension to Canaveral Pier & Fish Co. property, giving 800 ft. of dock; erect warehouse on end of pier.

Fla., Miami—Riverside Laundry erect addition to plant, W. Flagler and Seventh St.

Fla., St. Petersburg—Kelley-MacGregor Baking Co., 426 Proston Ave., South, expending \$20,000 for improvements to plant including installations of combination slicing and wrapping machines and oven equipment; will purchase 4 trucks.

Fla., St. Petersburg—J. Howard Gould Co., Inc., chartered; J. H. Gould, 2755 Fourth Ave., N.

Fla., Tampa—Florida Labor Advocate Publishing Co., incorporated; C. E. Silva, 53 Columbia Drive.

Fla., Tampa—Wm. T. Donnelly, Marine Engr., 247 Park Ave., New York, engaged by Chamber of Commerce and Tampa Shipbuilding & Engineering Co. to survey Tampa harbor for necessity for dry dock; to determine best location for such a dry dock; to prepare estimate of costs and suggest plans for financing; and, if undertaken, to prepare plans and supervise construction of dry dock; in connection with this project Tampa Shipbuilding & Engineering Co., Ernest Kreber, Pres.-Gen. Mgr., Estuary, agreed to give 10 acres adjacent to its plant, although Mr. Donnelly in his survey is to cover entire harbor and determine best location.

Fla., Zephyrhills—Zephyrhills Publishing Co., incorporated; B. A. Thomas, B. F. Parsons.

Ga., Columbus—R. W. Page Corp., Publishers, advise contract let to Williams Lumber Co., 13th St., for construction of Ledger-Enquirer building; plumbing contract let to Albrecht Plumbing Co., 1032 Wynnton Drive; heating contract to C. Ed Cooper, 1043 Sixth Ave.; wiring to Georgia Electric and Construction Co., 1518 First Ave., all Columbus; cost of building \$100,000. 8-21

Ga., Durand—Ceresine International Products Co., Fuller Wishatt, Pres., Charlotte, N. C., may locate plant here for manufacture face powder from clay mined near Warm Springs; Wade Moss, Durand, also interested; may build warehouse at Charlotte.

Ky., Campbellsville—Atlas-Republic Insurance Co., capital \$400,000, incorporated; J. H. Pickett, Alfred N. Estes, 108 W. Kentucky St., Louisville; company is consolidation of Republic Life & Accident Insurance Co., 1469 S. Fourth St., Louisville, and Atlas Life & Accident Co.

Ky., Louisville—Perfect Syrup Pump Co., capital \$25,000, incorporated; W. E. Harrison, 115 N. 43rd St.

Ky., Louisville—Automatic Safety Signal Gate Co., capital \$25,000, incorporated; Carl R. Webb, No. 2 Normandie Village.

Ky., Louisville—Louisville Poster Advertising Co., incorporated; W. A. Thompson, 127 E. Kentucky St.

Ky., Owensboro—O. D. Mattingly, reported, acquired interest of J. W. Pate, of Hawesville, in Hawesville-Cannelton Ferry Co., operating between Louisville and Owensboro.

La., Shreveport—Art Craft Press, Inc., 1505 Marshall St., lately noted chartered; has acquired equipment of Tobey Press, Inc., 521 E. College St. 7-17

Md., Baltimore—Consolidated Engineering Co., 20 E. Franklin Sts., has contract for distributing station at 4228 Hayward Ave. for City Baking Co., 310 N. Gay St.; 107x257 ft., 1 story, brick, cinder block; cost \$25,000; Lucius R. White, Jr., Archt., Court Squar Bldg.

Md., Baltimore—Lexington Indoor Golf Course, Inc., 315 W. Lexington St., chartered; Morton H. Strasburger, 6011 Park Heights Ave.

Md., Baltimore—Chestnut Farms Dairy, Inc., Pennsylvania Ave. & 26th St., N. W., Washington, D. C., branch of National Dairy Products, Inc., 1403 Eutaw Place, Baltimore, acquired branch plant of City Baking Co. at 418 S. Hanover St.

Md., Baltimore—Robinson Slagle Co., American Bldg., capital \$50,000, chartered; Harry L. Robinson, Charles W. Slagle, Jr.; construction work.

Md., Baltimore—Pugatch Construction Co., 2217 E. Lombard St., incorporated; Isaac Berlin, C. Pugatch.

Md., Baltimore—Hegeman Harris Equipment Corp., 1628 Baltimore Trust Bldg.; chartered; Morgan M. Mann, 120 Broadway, New York.

Md., Baltimore—Washington Planograph Co., Inc., 615 Continental Bldg., chartered; James E. Halley, 1220 N. Capitol St., both Washington, D. C.

Mississippi—J. J. Kean, 601 Wilkinson St., Shreveport, La., reported, contemplates locating glass plant; Louisiana and possibly Jackson, Miss., under consideration.

Miss., Aberdeen—Aberdeen Bottling Works, C. C. Clark Propr., West Point reported, let contract to Addison Brannin & Son, for plant; P. J. Krouse, Archt., M. & W. Bldg., Meridian. 7-3

Mo., Boonville—Boonville Newspaper Co., capital \$20,000, incorporated; F. L. Steenrod, Boonville; Paul B. Whallon, Excelsior Springs.

Mo., Jefferson City—Missouri National Life Insurance Co., Monroe Bldg., increased capital, \$25,000 to \$50,000.

Mo., Kansas City—Tarkio Molasses Feed Co., Guinotte and Woodland Aves., reported, rebuild burned portion of plant.

Mo., Kansas City—Blue Valley Industrial Corp., incorporated; W. M. Spencer, 28th St. and Southwest Blvd.

Mo., North Kansas City, Kansas City—Corn Products Refining Co., Bd. of Trade Bldg., Kansas City, reported, begin work in about 1 month on work to include new buildings and additional power equipment; cost about \$250,000; work includes 3 buildings and an auxiliary wing of power plant; install 4000 kw. steam turbine; warehouse for bagged cattle feed, 100x150 ft.; provide storage for 35,000 bags feed; corn syrup warehouse, 100x50 ft.; blending house to house new installation of machinery. 8-7

Mo., Rolla—Busy Bee Laundries and Dry Cleaners, capital \$20,000, incorporated; W. R. Rapp, Ben J. Bursmeyer.

Mo., St. Louis—H. R. Zigel Slip Cover Co., 5024 Delmar Blvd., incorporated; H. R. Zigel, University City; Louis Hoffman, 5217a Devonshire St., St. Louis.

Mo., St. Louis—Banner Printing Co., 308 N. Third St., chartered; August Otto, 4415 Arsenal St.

Mo., St. Louis—Pevely Dairy Co., Grand and Chouteau Aves., reported, let contract to Atlas Iron Works, 4020 Geraldine St., for 300 tons fab. struc. steel for plant. 7-24

N. C., Asheville—Carolina Tobacco Warehouse Corp., B. D. Saunders, Operating Mgr., reported, acquired site Valley and Beaumont Sts. for erection of warehouse; acquired charter of Buncombe Tobacco Warehouse Corp.

N. C., Asheville—Asheville Citizen and Asheville Times, merged, Charles A. Webb, Pres.

N. C., Forest City—B. & A. Amusement Co., capital \$50,000, incorporated; A. J. Dardine, Selwyn Ave., Ext., Charlotte; J. A. Reynolds, Shelby.

N. C., Fort Bragg—Constructing Quartermaster Capt. Lawrence L. Simpson has low bid from Coastal Construction Co., Florence, S. C., at \$90,000 for roads, sidewalks and gutters. 7-31

N. C., Greensboro—Arnold Stone Co., 916 Warren St., capital \$100,000, incorporated; M. A. Arnold, L. L. Krippner.

N. C., New Bern—Nehi Bottling Co., capital \$15,000, incorporated; G. S. Waters, 131 Broad St.

N. C., Winston-Salem—New Method Holding Corp., chartered; W. S. Burrus, 2116 Ridgcrest Drive, Raleigh, R. G. Zimmerman, Bohannon Apts., Winston-Salem; conduct laundry.

Okla., Cushing—Crenshaw Construction Co., incorporated; L. A. Crenshaw.

Okla., Oklahoma City—Harry Reynolds Construction Co., 636 E. Seventh St., completing oxygen plant for Burdett Oxygen Co., 600 N. Hudson St.; 50x75 ft.; 1 story; brick and steel; cement floors; steel deck roof; cost \$20,000; equipment for plant will be purchased by owners. 8-21

Okla., Tulsa—Country Club Packing Co., recently organized with \$100,000 capital, L. J. Reiter, Pres., 7 N. Cheyenne St., reported, acquired plant of Betterton Coffee Co., on Sand Springs Rd.; remodel and erect addition.

Tenn., Memphis—Forest Products Chemical Co., W. H. Matthews, Pres., Peres St., reported, plans remodeling and erecting addition to refinery building for production of chemicals, charcoal, etc. from hardwood; J. Hunter, Engr., Union and Planters Bldg.

Tenn., New Market—Hunter B. Chapman, Pres., Shenandoah Caverns in Valley of Virginia, acquired and is developing Indian Cave in Grainger County, Tenn., 4 miles from New Market; 10 miles of lead cables will be re-

quired for illuminating caverns, 15,000 ft. already placed; will use 1850 lights; development work under direction of Hugh A. Knelsley, Woodstock, Va.; installation of lighting system under direction of William Snyder of Staunton, Va.; Indian Cave Park Assn. acquired large acreage contiguous to original cave tract and project embraces erection of cabins for tourists; Indian Cave will be operated by Indian Cave Park Assn., Inc. See Want Section—Machinery and Supplies. 8-14

Tex., Beaumont—Texas Shirt Mfg. Co. chartered; P. L. Hare, 2335 Calder St.

Tex., Cuero—Swift & Co., Chicago, Ill., reported, erect 2 story, brick plant.

Tex., Dallas—Dallas Construction Co., capital \$300,000, incorporated; J. W. Vilbig, 3013 Live Oak St.

Tex., Houston—Southern Well and Contracting Co., capital \$15,000, chartered; Jack Morris, 1410 Maryland St.

Tex., Houston—Werlin Publishing Co., capital \$10,000, chartered; Jacob B. Werlin, Mulberry Lane.

Tex., Laredo—Texas Mining & Smelting Co., Delaware corporation, H. P. Henderson, Pres., 522 Fifth Ave., New York, and Box 1070 Laredo, advises contracts have been let for steel building to Truscon Steel Co., Youngstown, O., and Alamo Iron Works, 130 Santa Clara St., San Antonio, in connection with antimony smelter; Alamo Iron Works also has contract for various items of equipment; contracts have been let for few small buildings of hollow tile construction; grading and railroad spurs for plant will be completed about August 21 and building construction will start about Sept. 5; plan completing plant this year; other officers of company are, J. B. Harper and W. J. Graveling, V. P.; F. G. Trowbridge, Sec. and Treas. all Box 1070 Laredo. 7-31

Tex., San Angelo—San Angelo Park Bd. plans construction of 4 wading pools in various parks; cost \$12,000.

Tex., San Antonio—Richter's Bakery capital \$100,000, chartered; R. W. Richter, 627 Cedar St.

Va., Cape Charles—See Miscellaneous Construction.

Va., Petersburg—E. L. Bass, Law Bldg., has contract for addition to plant of American Cigar Co., Hinton and South St.

Va., Richmond—The Black Swan, Inc., capital \$50,000, chartered; Whiting C. Faulkner, Electric Bldg., publishers.

Va., Roanoke—Cascade Bottling Co., Inc., 830 Fourth St., S. E. has plant with daily output 200 cases daily; install bottling machinery.

W. Va., Boncar—H. B. Agsten & Sons, Belle, has contract for first block of industrial plant buildings for Electro Metallurgical Development Co. of America, subsidiary of Union Carbide & Carbon Co., Carbide & Carbon Bldg., New York.

W. Va., Bluefield—Bayard Publishing Co., capital \$50,000, incorporated; B. L. Early, 501 College St.; publish National Accountant, monthly magazine.

W. Va., Clarksburg—John W. Patton Co., c/o F. C. Debericks, 509 E. Main St., reported, plans establishing plant in West End for manufacture glass for automobile windshields. 7-3

## Motor Bus Lines and Terminals

Mississippi—Mississippi Transportation Corp., 510 Tower Bldg., Jackson, incorporated with \$1,000,000 capital stock; J. K. Hirsch, Pres., 1402 Baum St., Vicksburg; operate 24 intra-state routes in Mississippi with inter-state connections at Memphis, Birmingham, Mobile and New Orleans; approximately 3680 miles; erect terminals and offices in Jackson; will purchase buses from 14 to 25 passenger capacity. 8-21

Mo., Kansas City—Missouri Pacific Transportation Co., subsidiary Missouri Pacific R. Co., St. Louis, will occupy building, 1724 Washington St., being erected by P. H. McCrory, 1918 Main St., as divisional operating point and storage depot; brick with steel truss roof.

Va., Richmond—Blue Line Delivery, Inc., capital \$15,000, chartered; Roscoe, B. Greenway, American Natl. Bank Bldg.

## Railways

Ky., Ashland—Chesapeake & Ohio Ry. Co., J. J. Burnett, Pres., Richmond, Va., authorized by Interstate Commerce Comsn., Washington, to acquire Big Sandy & Kentucky River Ry. Co., J. W. Kitchen, Pres.

Mo., St. Louis—Illinois Terminal R. R. Co., E. S. Hight, Ch. Engr., Chicago, Ill., let contract to Smith & Brennan Concrete Pile Co., 4000 N. First St., St. Louis, for furnishing 2000 rein. conc. piles in lengths ranging up to 70 ft. for use in trestle and footings of elevated line to connect McKinley bridge with new subway and underground terminal; railroad forces started excavating for double track subway in 12th St. south from point near Cass Ave.; subway to be of open cut type to be later covered by steel framework to support street above. 2-13

Okla., Shamrock—St. Louis-San Francisco Ry. Co., F. G. Jonah, Ch. Engr., St. Louis, let contract to Allhands & Davis, Frisco Bldg., Joplin, Mo., at \$120,000 for 3 mi. extension of Shamrock branch, Shamrock to Drumright.

Tenn., Memphis—See Miscellaneous Construction.

Tex., Ballinger—Abilene & Southern Ry., subsidiary of Texas & Pacific Ry. Co., E. F. Mitchell, Ch. Engr., Dallas, denied permission by Interstate Commerce Comsn., Washington, to construct 39 mi. extension of line, Ballinger to San Angelo. 8-8-29

### Railway Shops and Terminals

Tex., Lubbock—Panhandle & Santa Fe Ry. Co., subsidiary of Atchison, Topeka & Santa Fe Ry., G. W. Harris, Ch. Engr., Chicago, Ill., acquired site; plans laying tracks, constructing platforms, and erecting railway office, Main St.; 1 or 2 story, brick.

Va., Buchanan—Chesapeake & Ohio Ry. Co., C. W. Johns, Ch. Engr., Richmond, authorized extension of passing track and rearrangement of water station facilities, costing approx. \$59,600, and extension of set off track at Burks, approx. \$25,600.

### Roads, Streets and Paving

In connection with **LAND DEVELOPMENT** large sums are expended for roads, streets, paving and sidewalks. Details will be found under that classification.

#### Proposed Construction

Ala., Bessemer—City, Louis DeSabra, Engr., plans 1½ or 2-in. asphalt or bitulithic paving 19th St.

Ala., Fort McClellan—Quartermaster opens bids Sept. 8 for grading and constructing slag roads and sidewalks.

Ala., Mobile—State Highway Comsn., Woolsey Fennell, Director, Montgomery, opens bids Sept. 16 for road and 9 bridges: 23.58 mi. grading, draining, 268,418 cu. yd. excavation, 56,595 lb. deformed bar reinforcement; 32-ft. conc. steel bridge to be widened to 20 ft., 185 ft. 6-in. conc. bridge, 92-ft. conc. bridge to be widened to 20 ft., 2 conc. box culverts, 148-ft. conc. overhead bridge over G., M. & N. R. R., 238-ft. 6-in. conc. bridge, 144-ft. 6-in. conc. overhead bridge over G., M. & N. R. R., 1258 ft. 6 in. conc. and steel bridge over Escatawpa River.

Ark., Forest City—North & South Street Improvement Dist. No. 1, Linn Turley, Chmn., plans 35,000 sq. yd. grading, draining, curb, gutters, paving with asphalt or conc.; \$116,000.

Ark., Glenwood—City, Bd. of Commrs., M. F. Gibbs, Chmn., plans grading, curb and gutter and asphalt paving; \$26,000; Ford & McCrea, Engrs., Gazette Bldg., Little Rock.

Georgia—State Highway Bd., B. P. McWhorter, Engr., Atlanta, plans paving Peach Orchard and McBean routes, Augusta to Waynesboro.

Ga., Brunswick—City plans expending \$40,000 for paving. See Financial News Columns.

Ga., Buena Vista—City, B. S. Parker, Mayor, plans paving streets around courthouse square; Knox T. Thomas, Const. Engr., Standard Bldg., Atlanta.

Ga., Hogansville—City, C. T. Hightower, Clk., plans 10,000 sq. yd. conc. paving; Knox T. Thomas, Const. Engr., Standard Bldg., Atlanta.

Ga., Rome—City Comsn., T. B. Owens, Chmn., plans paving W. Eighth Ave., E. 10th St., E. Fifth St., Butler St. and E. Forrest St.

Ky., Louisville—City, Arthur A. Will, Dir. of Public Works, opens bids Sept. 2 for 13 new streets.

Ky., Owensboro—City, Henry Cline, Commr., plans resurfacing E. Fourth St.

Louisiana—State Highway Comsn., H. B. Henderlite, Engr., opens bids Sept. 16 for 5 roads: Catahoula Parish—8.94 mi. grading, draining, Harrisonburg-Enterprise highway; 4.33 mi. grading, draining, Guicefield-Nickel Highway, Route 259; Winn Parish—5.17 mi. grading, draining, Tennehill-Cypress Creek School Highway; Bossier-Webster Parishes—clearing right of way, Bossier City-Minden Highway, Route 4; St. Landry Parish—2.0 mi., 18-ft. Portland cement conc. paving, Route 26 in Eunice.

La., Monroe—Ouichita Parish Police Jury plans expending \$71,500 for road construction.

La., Oberlin—Allen Parish Police Jury, W. R. Hargrove, Pres., plans road to connect old Oberlin-Sugartown road with Elizabeth and Sugartown road.

Maryland—State Roads Comsn., Baltimore, L. H. Steuart, Secy., has low bids for 2 roads: Harford County—1.23 mi. conc., Bush's Corner-Pennsylvania State Line road, Cont. H-98-44, G. & L. Contracting Co., 3509 Northern Parkway, Baltimore, \$24,531; Queen Annes County—65 mi. penetration macad., from Eastern Shore Blvd. to Queens-town, Cont. Q-60-24, P. D. Phillips & Bro., Salisbury, \$14,899. 8-14

Maryland—State Roads Comsn., Baltimore, opens bids Sept. 3 for 6 roads: Anne Arundel County—0.38 mi. conc. paving, Sappington-Odenton road, Cont. AA-100-74; Baltimore County—1.4 mi. hot or cold bit. mixtures, Falls Road, Ridge Church to Shawan, Cont. B-163-411; Baltimore City—0.9 mi. sheet asphalt paving, 41st St., Roland Ave. to Woodberry Ave., Cont. BC-92-74; Harford County—3.0 mi. penetration macad. paving, Priestford Bridge road, end of Cont. H-81 toward McCann's Corner, Cont. H-82-42; Howard County—1.46 mi. penetration macad. resurfacing, Ilchester road to Montgomery road, Cont. HH-83-54; Wicomico County—1.0 mi. conc. paving, Powellville-Whitton road, end of Cont. WI-52 toward Whiton, Cont. WI-66-12.

Maryland—State Roads Comsn., L. H. Steuart, Secy., Baltimore, opens bids Sept. 4 for 1.9 mi. road, Dames Quarter and Chance, Somerset County, Cont. S-44-12.

Md., Baltimore—City, Bureau of Highways, Dept. of Public Works, Nathan L. Smith, Highways Engr., plans improving Arizona Ave., Christopher Ave. and Old Lane.

Md., Towson—Baltimore County Commrs., Samuel A. Green, Roads Engr., open bids Sept. 2 for .92 mi. conc. paving, Seminary Ave. Dulany's Valley Road east.

Miss., Canton—Highway Comsn., Dist. No. 4 of Madison County opens bids Sept. 2 for 19 mi. grading, draining.

Miss., Canton—Madison County Supvrs., Aurie Sutherland, Clk., open bids Sept. 8 for building Canton-Carriage road.

Miss., Collins—State Highway Comsn., Jackson, opens bids Sept. 2 for grading, draining section of Reddock Ferry Mount Olive road, Beat 4, Covington, 7800 cu. yd. excavation.

Miss., Corinth—City, Mayor and Bd. of Aldermen, W. A. McCord, City Clk., open bids Sept. 1 for 1½-in. Alabama natural asphalt rock, hot mix resurfacing 17 blocks, 1500 tons material, approx. 20,005 sq. yd.

Miss., Hernando—DeSoto County Bd. of Supvrs., W. L. Browning, Clk., open bids Sept. 1 for graveling 2½ mi. road, Fifth Supvrs. Dist. near Nesbitt to Horn Lake-Memphis road.

Miss., Kosciusko—Attala County Highway Commrs. open bids Sept. 11 for graveling 31 roads, approx. 66 mi., in Attala County Separate Road Dist.

Miss., Kosciusko—Commrs. of McAdams, Sallis and Bodone Separate Road Dist., Attala County, opens bids Sept. 12 for 11 mi. graveling Boyett-Goodman road, Boyett-Durant road, Boyett-Sallis road, 7480 tons washed gravel.

Miss., Lexington—Holmes County Bd. of Supvrs., Gordon Ashley, Clk., opens bids Sept. 1 for graveling various roads, Dist. No. 2.

Miss., McComb—City, Mayor and Bd. of Selectmen, open bids Sept. 2 for paving 4 blocks, Louisiana Ave.; Henry A. Mentz & Co., Const. Engr., Hammond.

Miss., Vicksburg—City, X. A. Kramer, Mayor, plans letting contracts for paving following streets: City Cemetery road, Bowmar Ave., Third, Spring, Division, Prospect, Mattingly, Security, China, Rigby.

N. C., Charlotte—City, Robert L. Brown, Commr. of Public Works, plans receiving bids in about 2 weeks for widening and extending S. College St., Stonewall to Vance and underpass under Southern Ry. 8-14

N. C., Greensboro—City, Irving C. Brower, City Mgr., opens bids Sept. 2 for paving widened sectors of E. Market St., Nocho to Lyndon; repave present streets and surface widened portion, 10,000 sq. yd. pavement.

N. C., Winston-Salem—City, Public Works Dept., Harry L. Shaner, Commr., has low bid from Atlantic Bitulithic Co., Wachovia Bank Bldg., at \$5466, for widening and paving W. First St., Brookstown Ave. to Green St., and at 2658 for paving First Ave., Brookstown Ave. and Broad St.

Oklahoma—State Highway Comsn., A. R. Losh, Engr., Oklahoma City, has low bids for 9 roads and 10 bridges: Seminole County—3.770 mi. conc., Highway 46, Hyde Construction Co., Enid, \$59,204; 11.33 mi. grading, Highway 48, J. J. Harrison, Lindsay, \$45,399; 2 bridges on same highway, J. J. Harrison, \$22,119; Roger Mills-Beckham Counties—10.24 mi. grading, draining, Highway 24, Maney & Alley, Empire Bldg., Oklahoma City, \$34,343; bridge same highway, Merveldt & Lawson, El Reno, \$5271; Osage County—7.741 mi. grading and draining, Highway 25, J. Harrison \$43,444; 4 bridges, same highway, Gravelle & Hamblin, Barnes Bldg., Muscogee, \$35,808; Texas County—14 mi. grading, draining, U. S. No. 64, Kansas line to Optimo, Yancy Construction Co., Abilene, Kans., \$43,343; 23 mi. grading, draining, U. S. No. 64, Yancy Construction Co., \$27,776; Beaver County—27.25 mi. grading, draining, Yancy Construction Co., \$59,932; Comanche County—5.57 mi. grading, draining, Highway 36, Dan Sweeney, 614 W. 11th St., Oklahoma City, \$15,937; bridge, same project, Dan Sweeney, \$7946; Jackson County—8.92 mi. grading, draining, Altus west, Dan Sweeney, \$23,671; 2 bridges, same project, Southwestern Bridge & Culvert Co., Hersh Bldg., Oklahoma City, \$28,217. 7-31

Okla., Tulsa—City, George L. Watkins, Mayor, plans 7-in. conc. repaving E. 15th St., Yorktown Ave. to Terrace Dr., and portion of Terrace Dr., 46 ft. wide.

Tenn., Chattanooga—City, E. D. Bass, Mayor, considering widening Rossville Ave.

Tenn., Chattanooga—Hamilton County Highway Commrs., T. S. Wilcox, Chmn., open bids Sept. 9 for building Johnson Pike, St. Elmo to top of Lookout Mountain, together with approaches.

Tennessee—Federal Forestry Service, Washington, expend \$22,676 building Tellico River road, Tellico Plains through Cherokee National Forest toward North Carolina line.

Texas—State Highway Comsn., Gibb Gilchrist, Engr., opens bids Sept. 15 for improving road, Sweetwater to Roby, and possibly through Roby north to Kenty County line.

Tex., Dallas—Dallas County Commrs. Court, Chas. E. Gross, County Auditor, has low bid from Engineering Construction Co., Thomas Bldg., at \$18,878, for brick paving Commerce St. viaduct, from Paul Pick Co., at \$15,462, for asphalt paving same.

Tex., Houston—Chickasaw County Supvrs., W. A. Wilkinson, Chancery Clk., opens bids Sept. 1 for graveling 2¼ mi., Trebloc and Aberdeen road, Dist. 4.

Tex., Houston—City, W. E. Monteith, Mayor, and Harris County Court, Norman Atkinson, Judge, has low bid from Gulf Bitulithic Co., 2820 Polk St., at \$154,987 for rock asphalt paving Yale St., Washington to 22nd, 42 ft. wide, at \$164,931, for Warrenite bitulithic paving same; J. M. Nagle, City Engr. 8-14

Tex., Stephenville—State Highway Comsn., Gibb Gilchrist, Engr., considering hard surfacing Highway No. 10, Erath County.

Va., Norfolk—City, I. Walke Truxton, Mgr., plans paving 2 blocks, Jefferson St., placing asphalt shoulders, Colley Ave. through Larchmont, sidewalks, 48th St., Hampton Blvd. to Powhatan Ave.

Va., Richmond—City, R. Keith Compton, Dir. of Public Works, has low bids for 2 streets: Asphalt on conc. base paving W. Main St., McGuire & Rolfe, Electric Bldg., \$27,492; paving Second St., C. M. Henley, 23 S. Beeh St., \$20,217. 8-14

West Virginia—State Road Comsn., C. P. Fortney, Chmn., Charleston, opens bids Sept. 23 for 13 roads and 3 bridges: Lincoln County—6 mi. grading, Draining, Yawkey Alum Creek road; Jackson County—12¼ mi. grading, draining, Route 5, Ripley toward Spencer; Monogalia-Grafton Counties—2 projects, improving Route 86 between Morgantown, Halleck and Grafton; Berkeley-Jefferson Counties—15 mi. stone base, widening and retreat surface, Martinsburg Charles Town road; Doddridge County—.93 mi. grading, paving with cement conc., Northwestern Turnpike; 2.4 mi. grading, paving with cement conc., Northwestern Turnpike; 5.25 mi. grading,

draining. West Union-Troy road; Greenbrier County—3 culverts and approaches, Rainelle-Rupert road; Hancock County—4 mi., grading, draining. New Cumberland-Chester road; Monongalia County—3 mi. retread surface, Morgantown-Halleck-Grafton road; Pocahontas County—5 mi. grading and paving with stone base and retread surface, Durbin-Randolph County road; Monroe County—3.9 mi. shale surfacing, Sweet Springs-Virginia State Line road; Taylor County—5.5 mi. grading, draining. Grafton-Halleck-Morgantown road; McDowell County—3 50-ft. steel I-beam superstructures, Upper Landgraf bridge; Ritchie County—Ashlar masonry substructure, 2 abutments and 2 piers, Laurel bridge; Ashlar masonry substructure 2 abutments, Oxbow bridge.

W. Va., Bluefield—City, Elmer C. Burton, Mgr., plans paving Tazewell Ave.

#### Contracts Awarded

Ala., Birmingham—City, A. J. Hawkins, Engr., let contract to Dunn Construction Co., Lincoln Life Bldg., at \$21,106, for paving First Ave., and at \$10,161, for paving S. 14th St. 7-3

Ala., Jasper—Walker County, J. R. Smith, Engr., let contract to A. F. Brown Contracting Co., at \$14,000 for 11/16 mi. 100-ft. grading, draining, Sipsey-Empire road. 7-31

Ark., Hot Springs—Street Improvement Dist. No. 138, Albert F. Anne, Engr., let contract to Smith Bros., at \$10,417, for 6400 sq. yd. conc. paving, Edgewood Addition. 7-10

Ark., Newport—Improvement Dist. 14 Bd. of Commrs., Jesse E. Williams, Chmn., let contract to T. J. Jones and Harvey Brown, 507 W. Fourth St., North Little Rock, Little Rock, at approx. \$1,870, for grading, draining, paving about 15 blocks. 8-14

Ark., Newport—City, Street Improvement Dist. 14, Jesse E. Williams, Chmn., let contract to James Stanton, Iola, Kans., at \$46,340 to grade, drain and pave Third St.; Lund Engineering Co., Engr., Home Insurance Bldg., Little Rock. 8-14

Florida—State Road Dept., B. M. Duncan, Engr., let contracts for 10 roads: Taylor County—road 19, Fred D. Beasley, Inc., Tampa, \$173,434; Manatee County—Road 5, Florida Lime Rock Sales Co., Ocala, \$14,792; Road 5, Shearman Concrete Pipe Co., Maple Road, Dallas, Tex.; Calhoun County—Road 6, two projects, Florida Gravel Co., Chatahoochee; Columbia County—Road 28, Florida Crushed Stone Co., Ocala, \$82,333; Road 28, Barrett Co., Fairfield, Birmingham, Ala.; Road 28, Texas Co., 546 E. Third St., Jacksonville; Duval County—Road 78, Woodstock Slag Co., 2201 First Ave., N., Birmingham, Ala., \$7983; Road 78, Texas Co.

Florida—State Road Dept., B. M. Duncan, Engr., Tallahassee, let contracts totaling \$21,742, for road materials: Okaloosa County—gravel Road 54, Roquemore Gravel Co., First Natl. Bank Bldg., Montgomery, Ala.; Walton County—tar prime, Road 40, Barrett Co., Fairfield, and American Tar Products Co., Woodward Bldg., both Birmingham, Ala.; oil asphalt, Standard Oil Co. of La.; Baton Rouge, La.; Walton County—tar prime, Road 40, Barrett Co., and American Tar Products Oil Co., asphalt, Standard Oil Co. of Louisiana; Gilchrist County—tar prime, Road 14, Barrett Co. and American Tar Products Co.

Georgia—State Highway Bd., B. P. McWhorter, Engr., Atlanta, let contract to MacDougall Construction Co., 345 Angiers Springs Road, Atlanta, at \$335,341, for road and widening 2 bridges, Milledgeville road. 8-7

Ga., Columbus—City, H. B. Crawford, Mgr., let contract to Campbell Contracting Co., 1312 10th Ave., at \$32,250, for paving streets in Peacock Woods.

La., Bastrop—Morehouse Parish Police Jury let contract to Alexandria Contracting Co., 907 Fourth St., Alexandria, for 3 1/2 mi. extension to Point Pleasant Highway, exclusive of gravel surfacing. 7-31

La., Baton Rouge—Commrs. Council let contract to Southern Roads Co., Raymond Bldg., Baton Rouge, for paving Boyd Ave., Canal to Menard St. and Menard St., North St. to Boyd Ave. 8-14

Md., Cumberland—City, Jas. H. Griffin, Street Commr., let contract to Cumberland Contracting Co., Valley St. Bridge, at \$24,679, for amiesite paving Cecil St., amiesite repaving Decatur and Columbia St.; Ralph L. Rizer, City Engr. 8-7

Mo., University City, St. Louis—City, Bd. of Aldermen, let contract to William A. Riley Construction Co., 706 Chestnut St., at \$29,138, for paving 15 ft. on each side of roadway of Delmar Blvd., Hanley road to Wellesley Ave.

Mo., Springfield—City, J. P. Ramsey, Commr. of Streets and Public Improvements, let contract to F. A. Baron, 315 W. Lynn St., for conc. paving alley east of Robberson Ave., and conc. paving and integral curb, Franklin Ave., High to Turner; S. R. Fisher, City Engr.

Okla., Tulsa—City, George L. Watkins, Mayor, let contract to H. L. Cannady & Co., 116 S. Lewis St., for paving Delaware Ave., Seventh to Eighth St., and 29th St., Utica to Victor Ave., at \$12,046.

Tennessee—Dept. of Highways and Public Works, Nashville, let contract to Brown Construction Co., 2117 Lauri St., Chattanooga, at \$60,357, for 1.411 mi. grading, draining, Highway 38, St. Elmo to Lookout Creek, Hamilton County. 7-31

Tennessee—Dept. of Highways and Public Works, T. E. McEwen, Engr., Nashville, let contract to Roberts Paving Co., Salisbury, Md., at \$358,752, for 14.6 mi. paving, Highway No. 29, Morgan County line to Helenwood, Scott County. 7-31

Tennessee—Dept. of Highways and Public Works, T. E. McEwen, Engr., let contract for 6 roads and 18 bridges: Knox County—8 mi. paving, Route 9, Anderson County line to Knoxville, John L. Hubbard Construction Co., Quincy Ave., Knoxville, \$155,019; Rhea County—7 mi. grading, draining, State Highway 29, Spring City to Roane County line, Chandler Bros., Virgilina, Va., \$61,665; Hickman County—7 mi. grading, draining, Route 100, south of Centerville, 5 bridges, Chandler Bros., Virgilina, Va., \$118,106; Lewis County—5 mi. grading, draining, Route 48, Trace Creek to Hohenwald, bridge, W. B. Williams & Son, Milan, \$41,821; Franklin County—13 mi. grading, draining, Route 15, Lincoln County line to Winchester, 2 bridges, John Oman, Jr., Acklen Park, Nashville, \$65,411; McNairy County—7 bridges, Route 57, W. G. Just, Jefferson City, Tenn., \$34,622; Cheatam County—4.5 mi. grading, draining, Route 49, Ashland City to Bellsburg, 3 bridges, John Aman, Jr., \$132,312. -12

Tenn., Fayetteville—Dept. of Highways and Public Works, Nashville, let contract to C. G. Kershaw Construction Co., Woodward Bldg., Birmingham, at \$106,082, for 15 mi. grading, draining Highway No. 15, Lincoln County, Fayetteville to Franklin County line.

Tenn., Shelbyville—City let contract to Municipal Paving & Construction Co., Cotton States Bldg., Nashville, at \$9,853, for rock asphalt paving public square, N. Main St. and Belmont Blvd.

Tenn., Springfield—City, J. R. Adams, Clk., let contract to Eller & Olsen, Cotton States Bldg., Nashville, at \$3,164, for grading, curbing, gutter, paving 15,000 sq. yd. in several districts.

Va., Richmond—City, R. Keith Compton, Dir. of Public Works, let contracts for 5 road projects: Approaches to bridge over Nansemond River, Route 10, Blout & Hayman, Broadnax; relocation of highway at Darden's Mill Pond, Route 12, Blout & Hayman \$19,000; point north of Catawba Creek to point south of creek, Route 17, C. B. Hester, 1633 Spring Garden St., Greensboro, N. C., \$32,000; intersection of Route 10 and Route 204 to southern corporate limits of Bedford on Route 204, John Bowen and Overstreet & Nance Corp., Bedford, \$18,000; point 1.042 mi. from eastern corporate limits of Bedford to point 1.555 mi. western of eastern corporate limits, Route 10, Sam E. Finley, 292 North Ave., N. W., Atlanta, Ga., \$33,000.

#### Sewer Construction

**Sewer construction in LAND DEVELOPMENT projects involves the expenditure of large sums of money. Under that classification details of these improvements are reported**

Ala., Birmingham—City will let contract in about 2 weeks on construction of Southside sanitary sewers; due to error in tabulation of bids, all bids were rejected. 8-21

Ala., Birmingham—City receives bids Sept. 2 for sanitary sewers, Impro. Ordinance No. 1349-D. See Want Section—Bids Asked.

Ark., Judsonia—City, Dr. W. R. Felts, Chmn. Sewer Commrs., expend \$21,000 for sewer system; Ford & McCrea, Engrs., Little Rock. 7-3

D. C., Washington—Dist. Commrs. receive bids Sept. 3 for sewers. See Want Section—Bids Asked.

Ky., Louisville—Commrs. of Sewerage construct trunk sewer across Cherokee Park from Beargrass Creek at Lexington Rd. to Alta Vista Rd.

Ky., Louisville—Commrs. of Sewerage receive bids Sept. 15 on Beale Branch sewer project across Cherokee Park from Beargrass Creek at Lexington Rd. to Alta Vista Rd. 8-7

La., Rayville—Richland Parish Police Jury, J. C. Salmon, Secy., plans expending \$100,000 for building gravel roads and bridges.

Okla., Tulsa—City, Howard A. Parker, City Engr., plans work on sewer projects; first work to be Cat Creek storm sewer and laterals feeding into it; sub-project will be outlet sewer extending from river to Third St.; sewer extending from First St. and Guthrie Ave. to connection at First and Etwood; plans have been prepared for Oklahoma St., Lindell Park and Zion Place sewers; cost \$400,000. 8-21

Tenn., Chattanooga—City, reported, acquired Dallas Heights sewers.

Tex., Clayton—City, has survey completed by H. O. Garst, for installing complete sewerage system; cost \$167,000.

Tex., Houston—B. P. Pannas, Esperson Bldg., reported, has contract at \$17,000 for corrugated sheet metal and steel frame building at North Side sewage plant.

Tex., San Antonio—C. A. Anderson, 1026 Avant St., has contract for storm sewer on Sixth St., extension.

Va., Newport News—George W. Fuller, 170 Broadway, New York, recommended to city erection of \$200,000 treatment plant at Salters Creek. 7-24

W. Va., Parkersburg—J. D. Ankrom, 1040 Quincy St., Parkersburg, has contract for sewers and D. A. Criss, E. Seventh St. for paving.

#### Telephone Systems

Fla., Lake Placid—Inter-County Telephone & Telegraph Co., acquired site Pine and Hibiscus Sts., for stucco and hollow tile exchange building. 8-14

Fla., Winter Haven—Peninsular Telephone Co., reported, let contract to Parklap Construction Co., 610 Morgan St., Tampa, for building Ave. B and Second St. N. W.; 2 story; brick; 40x30 ft.; later install automatic equipment. 5-29

La., New Iberia—Upchurch Construction Co., Montgomery, Ala., reported, has contract for 1 story and basement central office telephone building for Southern Bell Telephone & Telegraph Co., Atlanta, Ga.; 60x40 ft.; brick veneer; rein. conc. foundation; asbestos roof. 8-14

Va., Martinsville—Lee Telephone Co., Rocky Mount, reported, acquired telephone system.

W. Va., Charleston—West Virginia Broadcasting Corp., constructing with local labor transmitting building for Station WVVA; 20x30 ft.; 1 story; concrete block foundation; Glenn Boundy, Engr., care of Station. 8-21

#### Textile Mills

N. C., Asheville—Raylaine, Inc., capital \$1,000,000, chartered; G. Jean Nord, Pres. and Gen. Mgr., reported, establish \$500,000 plant on Sweeten Creek Rd. 1 mile from here for manufacture textile, raylaine, made from synthetic fiber under process patented by Mr. Nord, yarn spun from which resembles wool; yarn will be woven into cloth for upholstering automobiles and airplanes, hats, rugs, etc.; Lawrence S. Holt, Jr., Chmn. of Bd., Sunset Trail; Alexander MacLean, Houghton Pl., W. Asheville, Curtis H. Bynum, Macon Ave., also interested.

N. C., Concord—Hoover Hosiery Mills, R. F. D. No. 4, reported, having installed 8 high speed full fashioned Hilscher knitting machines under direction of Paul Weber, Chemnitz, Germany.

N. C., Greensboro—Northwood Hosiery Co., 241 W. Wyoming Ave., Philadelphia, Pa., reported, establish branch plant; manufacture full fashioned hosiery.

N. C., Hickory—Conover Knitting Mills, Conover, and Longview Knitting Mills, Hickory, reported, consolidated under name Shuford Hosiery Mills; installed equipment of both mills in building in Hickory.

N. C., Sevier—M. L. Good, Sevier, W. W. Neal and Dr. Guy S. Kirby, Marion, acquired Sevier Knitting Mill; sale will not be confirmed until Sept. 2. 8-21

N. C., Spindale—Sterling Hosiery Co., capital \$50,000, incorporated; S. E. Elmore, G. B. Howard.

Tenn., Kingsport—Milton Silver, High Point, N. C., acquired Rex Tex Hosiery Mill on W. Market St., will operate under name Silver Knit Hosiery Mill; W. F. Hedges, Gen. Mgr.; later plans increasing capacity of plant.

## Water Works

Details of water works improvements in connection with the many LAND DEVELOPMENT operations will be found under that classification

Ala., Greenville—City plans expending \$28,000 for improvements to water works; soon let contract.

Ark., Siloam Springs—Southwest L. E. Myers Co., Allen Bldg., Dallas, reported, has contract for dam at Forest Park, 4 miles east of here on Illinois River for Illinois Development Co., of Tulsa, Okla.; conc.; contract for earth work dikes, rip-rap and auxiliary spillway let to Winstead & Gunter, Siloam Springs; dam will impound water to furnish hydro electric power in city and provide lake; approximately 600 acres will be inundated. 8-7

Fla., Fort Myers—City considering proposal of Layne-Southeastern Co., 742 Twenty-ninth Ave., S., St. Petersburg, to furnish city with soft water; water to be used from Lake Trafford in Collier County; company to build and maintain works, and deliver water to city's distribution system; referendum will be held on proposition.

La., Franklinton—Washington Parish School Bd., D. H. Stringfield, Sec., receives bids Sept. 23 for furnishing materials, labor, etc. for drilling artesian well.

La., Kenner—East Jefferson Water Works Dist. No. 1, reported, received low bid at \$79,000 from Geo. J. Robinson Co., 2700 Linden St., Pine Bluff, Ark., for laying water mains, etc.; Wilson-Hewitt Co., Asheville, N. C., at \$306,000 for c. i. pipe; Dixie Mill Supply Co., 901 Tchoupitoulas St., New Orleans, at \$27,000 for valves and hydrants; Vogt Bros. Mfg. Co., 1402 West Main St., Louisville, Ky., at \$11,000 for valves. 7-24

La., New Orleans—Sewerage and Water Bd. receives bids Aug. 27 for following: Contr. 104-D, de-aerating boiler feed water heater for main waterworks pumping station; Contr. 105-W, electrically driven centrifugal pump, and contract for furnishing creosoted poles.

La., Ruston—City plans addition to water works system; install additional mains.

Ky., Paducah—City, reported, negotiating for plant and equipment of Paducah Water Works Co.

Maryland—Washington Suburban Sanitary Comsn., Tower Bldg., Washington, D. C., reported, has plans for 10,000,000 gal. pumping station to replace present plant at Burnt Mills to supply sanitary district of Montgomery and Prince George counties; water will be diverted from Patuxent River into headwaters of northwest branch; will use same reservoir, install new filters; J. Howard Duckett, Chmn. of Comsn.

Md., Baltimore—Bd. of Awards receives bids Sept. 10 for construction of Prettyboy Dam; \$3,500,000. See Want Section—Bids Asked. 8-21

Mo., Mountain Grove—City votes Sept. 9 on \$20,000 water works bonds.

Mo., Richland—City votes Sept. 2 on \$50,000 water works bonds.

N. C., Charlotte—City, Edgar Read, Clk., will issue \$100,000 bonds for reconstructing water mains.

N. C., North Wilkesboro—Gilbert C. White Co., 406½ W. Main St., Durham, N. C., and Richmond, Va., employed to make survey of water supply.

N. C., Salisbury—Boyd & Goforth, Inc., Builders Bldg., Charlotte, has contract for extension sewer system; Pomona Terra Cotta Co., Pomona, for pipe. 8-14

N. C., Warrenton—Town receives bids probably about Sept. 9 for pump, dry chemical feed machine, agitator, coke aerator and pressure filter in connection with iron removal plant for water supply; The Permutit Co., 440 Fourth Ave., New York, has contract for filtering equipment; Spoon & Lewis, Consol. Engrs., Jefferson Bldg., Greensboro. 8-21

Tenn., Nashville—City receives bids Sept. 2 for electric motor driven centrifugal pumping unit for Nashville River pumping station. See Want Section—Bids Asked. 8-21

Tenn., Nashville—Harding Read Community Water Co., will construct 16-in. main to extend out Harding Rd. and Belle Blvd. to Percy Warner Park. 8-14

Tex., Brownwood—See Drainage, Dredging and Irrigation.

Tex., Brownsville — City voted \$170,000 water works bonds. 7-24

Tex., Dallas—City, reported, receiving bids for drilling artesian well for Oak Cliff; cost \$60,000.

Tex., Houston—J. A. Sauls, Water Engr., submitted to city 5 yr. improvement program to include adoption of water works engineering organization, establishment of survey program, carrying out well and plant program, distribution program, sanitary program and chemical and bacteriological laboratory; also recommended reservoir to cost \$35,000 be built at south end plant; reservoir at Scott St. plant be extended at cost of \$21,000; main laid from Scott St.; laying 2 mains from northeast wells, cost \$100,000. 8-21

Tex., Houston—City receives bids Sept. 3 for Pitometer water waste and study survey; information at office of city engineer.

Tex., Refugio—City, J. O. West, Mayor, receives bids Sept. 16 for water works, including 3940 ft. of 8-in., 20,240 ft. of 6-in., 26,620 ft. of 2-in. c. i. pipe; gate valves, etc.; Hawley, Freese & Nichols, Engrs., 302 Frast Bldg., San Antonio.

Va., Clifton Forge—Gilbert C. White Co., 406½ W. Main St., Durham, N. C., and Richmond, employed to make survey for water supply.

W. Va., Moundsville—Moundsville Water Co. plans erection pumping plant; lay 12-in. mains to carry water to present main, First to Tomlinson St.; daily capacity 1,500,000 gals.; David Morrow, Dist. Mgr. for Supervising Engineers, Inc., submitted blueprints.

W. Va., Pennsboro—Town voted \$40,000 water works bonds.

## Woodworking Plants

Va., Martinsville—Bassett Furniture Industries Corp., formed as holding company with \$5,000,000 capital as consolidation of 3 furniture manufacturing plants; will operate 6 factories in Henry County; companies are J. D. Bassett Mfg. Co. and Bassett Furniture Co., of Bassett; W. M. Bassett Furniture Corp., Martinsville; J. D. Bassett, Pres. of holding company.

Va., Norfolk — Steele-Wallace Corp., 818 Olive St., St. Louis, Mo., reported, acquired half interest in Princess Anne Corp., manufacturers of clotheings at Glenrock; increase daily capacity from 150,000 to 520,000.

## FIRE DAMAGE

Ala., Foley—Residences of M. O. Jones and M. T. Bracken.

Ala., Gadsden—Dr. A. W. Ralls' buildings on Broad St.; loss \$75,000.

Ala., Mobile—Zillak-Schafer Milling Co.'s plant, Weinack Ave.; loss \$45,000.

Ala., Town Creek—Stores of J. M. Lovett, C. M. Sanderson, J. H. LeMay.

Ark., Arkadelphia—Citizens National Bank; Pink Tea Grocery Co.; Daily Siftings Herald, owned by Philip McCorkle; loss \$60,000.

Ark., Datto—B. E. Smith's undertaking establishment; loss \$10,000.

Ark., Marmaduke—Lumber yards of Vail-Donaldson Cooperage Co.; loss \$70,000.

Fla., Jacksonville—Interstate Cooperage Co.'s plant, 1933 Enterprise St.

Ky., Calhoun—Calhoun High and Graded School; loss \$40,000.

Ky., Junction City—Floyd Abbott Bldg.; U. B. F. Lodge Bldg.; F. T. Burke Bldg.; loss \$12,000.

Ky., Lexington—Barn and dairy shed on farm of E. P. Eastin, Bryan Station Road; loss \$10,000.

Ky., Newport—Dine Furniture Co.'s store owned by Morris Romanow; loss \$50,000.

Ky., Whitley City—Star Hotel; Baptist Church; stores of A. L. Murphy, Winchester Grocery, W. E. Upchurch, W. F. Wilson, C. L. Anderson, Elton's Restaurant; loss \$100,000.

La., Lake Charles—Jos. Giovanni's residence, 1517 Gieffers St.

La., Mansfield—Ice cream plant under lease to C. H. Herring; loss \$14,000.

Md., Baltimore—Grain elevator, near Light and Cromwell Sts., of Western Maryland Ry. Co., H. R. Pratt, Ch. Engr., Baltimore.

Md., Baltimore—Baltimore Concentration Warehouse, 403 Guilford Ave., occupied by Thomas H. O'Connor Co.

Md., Middleburg—Barn on farm of Jesse Ressler near Middleburg.

Miss., Roxie—Ice plant and meat market of Edwin Farr.

Miss., Pachuta—Gin owned by Robert Bonney.

Miss., Roxie—Ice plant owned by N. K. Farr & Sons.

Mo., Kensett—Hotel Bevil owned by Jeff Cowan.

Mo., Kansas City—Portion of Tarkio Molasses Feed Co.'s building, Guinotte and Woodland Aves.; loss \$175,000.

Mo., Sparta—Russell School in Sparta Consolidated School Dist.; loss \$20,000.

N. C., Charlotte—Plant of Frierson Fly Driver Co., Beaufain St.

N. C., Lexington—Stockholders of Dixie Furniture Co., ratified action of directors for merging into Elk Furniture Co.; will change plant for manufacture dining room furniture. 8-14

Okla., Tulsa—Kahn Mercantile Co.'s store, 13 E. First St.; loss \$100,000.

S. C., Cheraw—E. G. Ingram's residence, Green St.

S. C., Sumter—Ginnery owned by Swift & Co., operated by J. M. Edens, Dalzell.

Tenn., Bell Buckle—Carl James' residence.

Tenn., Normandy — E. M. Bowen's residence; Stanley Shelton's residence, Boyd's Ranch.

Tenn., Red Bank, Chattanooga—Walter T. Wood's residence, Morris Station; loss \$8,000.

Tex., Atlanta—S. J. Clements' residence.

Tex., Crockett—Cedars Hospital, Dr. C. W. Butler, owner. loss \$35,000.

Tex., Marshall—Roe Alexander's residence, Highbridge Ave.

Tex., McAllen—Plant of Farmers Gin Co.; loss \$18,000.

Tex., Pendleton—Worth Jennings' store; building occupied by Earl Townsend Grocery and Pendleton Masonic Hall; Pendleton Telephone Exchange operated by W. M. Jennings; W. S. Smith's building, occupied by post office and barber shop; W. H. Townsend's confectionery; L. L. Warren's auto storage shop; J. B. Martin's warehouse; loss \$50,000.

Va., Amelia C. H.—Garage of J. D. Rand & Co.; loss \$35,000.

Va., Gate City—McConnell Bldg. owned by J. T. McConnell; loss \$75,000.

Va., Norfolk—Main unit of Virginia Wood Products Co., Westminster Ave.; loss \$62,000.

Va., Purcellville — Harry Wilt's barn, 8 miles from Purcellville; loss \$12,000.

Va., Winston — Barn of E. E. England, near Winston.

## BUILDING NEWS

### BUILDINGS PROPOSED

#### Association and Fraternal

Tex., Dallas—Young Men's Christian Assn., E. R. Brown, Pres., opens bids Sept. 9 (extended date) for central bldg., Ervay St. near Patterson Ave.; \$800,000, brick, stone, steel, struct. clay tile and rein. conc., 14 stories, 134x112 ft., cast stone, marble, granite, metal lath, steel sash, tile, cement and wood floors; separate bids for plumbing,

heating and ventilating, elect. work, and elevators; Anton F. Korn, Jr., Archt., Thomas Bldg. 8-14

W. Va., Williamson—Ancient Free and Accepted Masons probably call for bids in about 2 weeks for brick and stone temple; \$40,000, fireproof, 4 stories, 70x50 ft.; Warner, Tucker, Silling & Hutchinson, Archts., Masonic Temple Bldg., Charleston.

### Bank and Office

Ark., Arkadelphia—Citizens National Bank, W. B. East, Vice-Pres., rebuild burned structure; 2 stories.

La., New Orleans—Standard Industrial Life Insurance Co. of Louisiana, 1617 N. Claiborne Ave., considers erecting \$10,000 office bldg.; pressed brick, 2 stories, comp. roof.

### Churches

Ala., York—Presbyterian Church, Rev. J. M. Partridge, Pastor, plans to erect brick bldg. to replace burned structure; cost and dimensions not determined; architect not selected. See Want Section—Building Material and Equipment.

Ga., Savannah—First Church of Christ, Scientist, R. C. Humphrey, Chmn., Bldg. Comm., Savannah Bk. & Tr. Bldg., erect Colonial bldg., 31st and Whitaker Sts.; brick, 2 entrances; auditorium seat 350; Arthur F. Comer, Archt., Realty Bldg.; raise bldg. on site.

Ky., Paducah—Baptist Tabernacle erect bldg., 12th and Jefferson Sts.; plans completed; soon call for bids; Colonial type, auditorium seat 1200, fireproof; Sunday school in rear; G. Tandy Smith, Jr., Archt., Guthrie Bldg.

La., Colfax—Methodist Church, B. B. Dean, Chmn., Finance Comm., raising funds to remodel bldg.; probably brick veneer; auditorium, 5 classrooms, kitchen; C. Scott Yeager, Archt., Commercial Bk. & Tr. Bldg., Alexandria.

Mo., Kansas City—First Church of Christ, Scientist, Mount Washington, Mrs. O. C. Gribbin, Chmn., Bldg. Comm., 400 Donnelly Ave., soon start work on first story of Mission type bldg., Independence Ave. and Brookside Drive; stucco, circular auditorium of 40-ft. diameter, seat 250; second story with tile dome to be erected later; Ernest O. Brostrom, Archt., Reliance Bldg.

Mo., Springfield—Forest Hills Christian Church, Sherman Rutledge, Sec.-Treas. of Bd., may erect bldg., Walnut St. and Park Ave., and call Walnut St. Christian Church.

N. C., Spencer—Methodist Church, Rev. E. Myers, Pastor, has broken ground for building.

S. C., Charleston—St. Peters P. E. Church has low bid at \$36,663 from Carolina Construction Co., Walker Bldg., Greenville, for church, parish house and rectory; J. D. Newcomer, Archt., 32 Broad St., Charleston. 8-14

Tex., Harlingen—Roman Catholic Church, V. V. Pernoud, Chmn., Bldg. Comm., raising funds for \$40,000 church to be called St. Teresa of the Little Flower; brick, seat over 500.

Tex., El Campo—St. Phillip the Apostle R. C. Church, Rev. V. A. Raska, Pastor, erect conc. frame bldg.; face brick, tile backing, steel truss, oak floors, tile roof; auditorium seat 750; F. B. Gaenslen, Archt., Bldrs. Exch. Bldg., San Antonio; bids Aug. 27.

Tex., Paris—First Baptist Church, Dr. W. M. Wright, erect \$60,000 Sunday school; Kramer & Kerr, Archts., Burt Bldg., Dallas; plans ready for bids in about 2 weeks.

Tex., Whitewright—First Baptist Church, Rev. W. H. Ackley, Pastor, erect \$32,000 bldg.; architect not selected; brick and tile, 3 stories, 117x70 ft., hardwood, conc. and linoleum floors, conc. foundation, asbestos or other fireproof roof; furnishings, equipment, etc. \$3000. Address proposals to W. T. Simmons. 8-14

W. Va., Beckley—Church of God, J. L. Howell, member, plans building.

### City and County

Ga., Butler—Taylor County Bd. of Comms., F. B. Jarrell, Chmn., plans courthouse.

Miss., Carthage—Leake County defeated \$75,000 courthouse bonds. 7-31

La., Amite—Tangipahoa Parish Police Jury, Geo. N. Alessi, member, receives new bids Sept. 9 for courthouse and jail repairs.

La., New Orleans—City erect stone tile stable, Pitt and Millaudon Sts.; 1 story, 90x50 ft., rein. conc. foundation, cement floor, steel and iron work, sheet metal work; plans under way by M. B. DePass, City Archt., City Hall.

La., Rayne—Town Council receives bids Sept. 10 for jail; steel and brick, 18x26 ft., 3 cells; plans on file at office Town Clerk. 8-14

Mo., Kansas City—City will vote at November election on bonds for Civic Improve-

ment Program (Ten Year Plan); convention hall and auditorium probably included among projects.

Tenn., Chattanooga—Hamilton County Court may make improvements to Bonny Oaks; \$15,000 appropriation recommended by Chamber of Commerce.

Tex., Beaumont—Following contractors estimating on \$1,000,000 Jefferson County courthouse, bids Sept. 3: McDaniel Bros., Kyle Bldg.; Herman Weber, Perlstein Bldg.; Christy-Dolph & Collins, Goodhue Bldg.; Chas. F. Law, Perlstein Bldg., all Beaumont; K. C. Wilson, Slattery Bldg.; Ashton-Glassell Co., Inc., 260 Cadillac St., both Shreveport, La.; S. & W. Construction Co., Shrine Bldg., Memphis, Tenn.; American Construction Co., Rusk Bldg.; Telespen Construction Co., Box 1852; C. R. Berry & Co., all Houston, Tex.; Central Contracting Co., Athletic Bldg., L. H. Lacy Co., Burt Bldg.; A. J. Rife Construction Co., 1913 N. Harwood St., all Dallas, Tex.; James T. Taylor, Aviation Bldg., Fort Worth, Tex.; Clem Anderson Construction Co., Amarillo; Fred C. Stone, Goodhue Bldg., and A. Babin, Perlstein Bldg., Archts. 8-14

Tex., Dallas—City call for bids in about 30 days for \$25,000 branch library for negroes, Thomas Ave. and Worthington St.; fireproof, rein. conc. light brick, 1 story, 2720 sq. ft. floor space; Bryan & Sharp, Archts., Construction Industries Bldg.

Tex., Rosenberg—City plans city hall and fire station; Robt. C. Smallwood, Archt., Eserson Bldg., Houston.

Tex., San Antonio—Bexar County Bd. of Comms., Perry W. Robertson, Judge, erect kitchen and dining room at poor farm; \$25,000, face and common brick, tile and conc., conc. and wood floors, 1 story; Phelps & Dewees, Archts., Gunter Bldg.

### Dwellings

Ala., Birmingham—Dr. P. T. Falletta, Empire Bldg., has low bid at \$10,327 from Nibinger & Hooks for residence; Turner & Van Arman, Archts., Martin Bldg. 8-21

Ala., Sylacauga—W. B. McDonald erect \$17,500 wood shingle residence; 2 stories and basement, comp. roof, 3 baths, steam heat, garage and servants' quarters; Chas. H. McCauley, Archt., Jackson Bldg., Birmingham.

D. C., Washington—A. M. Parker erect residence, 4219 Chesapeake St., N. W.; Doleman & McCaw, Archts.

Ga., Atlanta—W. A. Sutherland, Brighton Rd., N. E., remodel and enlarge residence; brick veneer, 2 stories and basement, conc. footings, comp. roof; R. S. Monday, Archt., Norris Bldg.

Ga., Valdosta—Judge Jas. T. McMillan, Free Press Bldg., and Col. James Turner, Dime Bank Bldg., both Detroit, Mich., purchased tract, State Highway No. 38, for hunting preserve; erect hunting lodge; probably soon let contract.

La., Rayne—Louis Private Estate plans 2 bungalows, Louisiana Ave.

N. C., Charlotte—Mrs. Nellie B. Orr erect \$12,500 residence, 2107 Wellesley Ave.; brick veneer, 9 rooms.

Okl., Tulsa—J. E. Mabey, Exch. Bk. Bldg., purchased homesite, Forest Hills.

S. C., Aiken—Devereux Millbourne, Westbury, N. Y., erect 2-story and basement residence; Wilson, Peabody & Brown, Archts., 140 E. 39th St., New York; drawing plans.

S. C., Camden—J. L. Weeks erect residence; plans by Simons & Lapham, Archts., 42 Broad St., Charleston; bids Aug. 27.

Tenn., Knoxville—R. T. Clapp, care R. T. Clapp Battery Co., 412 W. Magnolia Ave., erect \$20,000 English type residence, Holston Hills; brick, stone trim, 12 rooms, 3 baths.

Tex., Crystal City—C. R. Roessler erect residence.

Tex., Eagle Pass—John K. Burr, 103 Gene-see Blvd., San Antonio, has low bid at \$11,997 from W. J. Moss, Uvalde, for ranch house, Maverick County; Wilder & Smith, Archts., Texas Theatre Bldg.; W. E. Simpson Co., Engrs., Milam Bldg., both San Antonio. 7-24

Tex., Falfurrias—C. E. Lips erect \$20,000 ranch house; struct. clay tile and stucco, 1 story, 100x26 ft., tile and wood floors, tile roof, orna. iron, metal lath; Hardy & Curran, Archts., Nixon Bldg., Corpus Christi.

Tex., Houston—Joe A. Hudson, Mgr., Rice Hotel laundry, purchased homesite, Rebecca Meyer Park, River Oaks.

Tex., Houston—W. L. Edmundson, Second Natl. Bank Bldg., erect 8 dwellings, 4700

blocks Pease and Jefferson Sts.; brick veneer, 5 and 6 rooms; \$16,500.

Tex., Houston—W. H. Gemmer, care Gemmer & Tanner, Petroleum Bldg., Houston, and Columbus, considers erecting residence, MacGregor Way, Riverside Terrace.

Tex., Houston—Geo. W. Dentler, 1809 Summer St., erect residence, Wichita Ave., Southwood.

Tex., Houston—John M. Spiller erect residence, Wichita Ave., Southwood.

Tex., Houston—H. W. McCormick, 3206 Main St., erect residence, Palm Ave., Southwood.

Tex., San Antonio—Wm. R. Lynch erect dwelling, Nogaltios Heights.

Tex., San Antonio—Herbert Holmgreen, 130 Santa Clara St., erect Spanish type residence, Terrell Hills; stucco, steel, 2 stories, 2 baths, tile roof; Morris & Noonan, Archts., Bldrs. Exch. Bldg.; steel frame to be erected by owner, bids for remainder.

Tex., San Antonio—R. H. Rehberg, care Beverly W. Spillman & Beverly W. Spillman, Jr., Archts., San Jacinto Bldg., has low bid from Ferguson & Wood for residence. 8-14

Tex., Victoria—E. Nielson erect 5-room stucco residence and 6-aprt. tourist camp, Nueces and Sitterle Sts.; Paul Goldsum, Guadalupe, erect residence, Malitz and San Antonio Sts.

Va., Bedford—St. Johns P. E. Church plans \$10,000 rectory, Belmont Ave.

### Government and State

Ala., Montgomery—Constructing Quartermaster, Capt. M. A. McFadden, receives bids Aug. 28 for auditorium; brick, conc. footings, 2 stories and basement; comp. roof; following contractors estimating: Grahn Construction Co., Red Rock Bldg.; Southern Ferro Concrete Co., Ellis St., N. E., both Atlanta, Ga.; Ogletree Construction Co., 11th St., Anniston, Ala.; Holley Construction Co., Ensley, Ala.; Smallman Construction Co., 1109 Fifth Ave., S.; A. J. Honeycutt Co., Martin Bldg.; Johnson Construction Co., 512 N. Sixth St.; D. A. Wallis, 404½ N. 20th St., all Birmingham, Ala.; Batson-Cook Co., West Point, Ga.; H. H. Brown, Dothan, Ala.; Algernon Blair, First Natl. Bank Bldg.; Samford Bros., Inc., 301 Washington Ave., both Montgomery, Ala.; Murphey Pound, Swift-Kyle Bldg., Columbus, Ga. 8-21

D. C., Washington—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., opens bids Sept. 12 for changes to fourth floor of Treasury Bldg.; drawings from office Supvg. Archt.

Ga., Savannah—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., has supplemental low bid at \$508,151 from John M. Geary Co., Arcade Bldg., Asheville, N. C., for remodeling and enlarging post office. 8-14

Ga., Fort Benning—Constructing Quartermaster, Lieut. W. M. Allison, has low bid at \$408,100 from Murphey Pound, Swift-Kyle Bldg., Columbus, for 60 non-commissioned officers' quarters and 8 company officers' quarters. 8-7

N. C., Fort Bragg—Constructing Quartermaster, Capt. Lawrence L. Simpson, has low bid at \$93,000 from Coastal Construction Co., Florence, S. C., for roads, sidewalks and gutters. 8-21

Okl., Tulsa—Following contractors estimating on \$1,000,000 Federal Bldg. (except elevators), bids Sept. 16 by Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C.; Virginia Engineering Co., Inc., First Natl. Bank Bldg., Newport News, Va.; English Construction Co., Washington, D. C.; Yeager & Sons, Danville, Ill.; Ralph Solitt & Sons Construction Co., 228 N. La Salle St., Chicago, Ill.; W. D. Lovell, Minneapolis, Minn.; Algernon Blair, First Natl. Bank Bldg., Montgomery, Ala.; Hiram Lloyd; Wm. MacDonald Construction Co., both Syndicate Trust Bldg., St. Louis, Mo.; DeVault-Deltrick, Inc., Canton, O. 8-21

Va., Alexandria—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., has supplemental low bid at \$240,500 for custom house, post office, etc., from Beaman-Coleman Construction Co., Lawyers Bldg., Raleigh, N. C.; contract lately incorrectly reported let. 7-17

Va., Langley Field, Hampton—Constructing Quartermaster, Fort Monroe, Va., Capt. Geo. H. Schumacher, has low bid at \$164,489 from J. A. Jones Construction Co., Commercial Bank Bldg., Charlotte, N. C., for 12 two-family houses, Langley Field; brick and tile, 2 stories, 56x37 ft., red oak floors, conc. foundation, shingle tile roofs. 7-31

Va., State Farm—State, Frank Bane, Commissioner of Public Welfare, Richmond, clearing site for State Industrial Farm for Women near State Farm; 2 units first, seat

accommodate 40; practically all material, except cement and metal window and door frames, from State institutions; Carneal, Johnston & Wright, Archts-Constr. Supvrs., Electric Bldg., Richmond. 8-21

### Hospitals, Sanitariums, Etc.

Ky., Louisville—Waverly Hills Sanatorium, A. H. Bowman, Chmn., 400 E. Main St., advises nothing definite as to financing or plans on proposed bldg. for children and bldg. for negroes; \$365,000; D. X. Murphy & Bro., Archts., Louisville Trust Bldg. 5-29

La., Monroe—Monroe Medical Clinic, Ouachita Bk. Bldg., Dr. J. Q. Graves, member, receiving bids (date of opening not set) for fireproof clinic; \$200,000, rein. conc., brick and steel, 2 stories, 135x50 ft., conc. and tile floors, comp. roof, rein. conc. foundation, steel and iron work, 66 rooms; Eugene John Stern, Archt., A. O. U. W. Bldg., Little Rock, Ark. 4-3

Mo., Excelsior Springs—United States Veterans Bureau, L. H. Tripp, Ch., Constr. Div., Arlington Bldg., Washington, D. C., receives bids until Sept. 23 for officers' duplex quarters, Bldgs. Nos. 23 and 24, U. S. Veterans Hospital; work includes excavating, conc., hollow tile, brick work, floor tile, iron work, slate and metal roofing, metal lathing, carpentry, stucco, plastering, metal weatherstrips, insect screens, etc., and outside sewer, water, steam and gas distribution systems and elect. service connections; drawings, from Room 764, Arlington Bldg.

Mo., Jefferson City—St. Marys Hospital may erect addition.

Mo., St. Joseph—State Eleemosynary Bd. Jefferson City, plans employees' bldg., State Hospital No. 2, Dr. Geo. Johns, Supt.; also plans bottling plant and pasteurizing plant for dairy.

Tex., El Paso—City of El Paso and El Paso County selected Trost & Trost, Two Republics Bldg., as architect for proposed city-county hospital; tentative plans call for 150-room bldg., probably \$400,000. 7-31

Tex., San Antonio—Woodmen of the World, W. A. Fraser, Pres., Omaha, Neb., has low bid at \$65,300 from U. H. Wagner for chapel, W. O. W. Hospital grounds; Phelps & DeWees, Archts., Gunter Bldg. 8-14

W. Va., Huntington—United States Veterans Bureau, L. H. Tripp, Ch. Constr. Div., Arlington Bldg., Washington, D. C., will locate \$700,000 general hospital in vicinity of Huntington. 1-2

### Hotels and Apartments

Ark., Harrison—Eugene Johnson, Archt., McDaniel Bldg., Springfield, Mo., advises that Continental Co., Springfield, does not plan erection of addition to Seville Hotel as recently reported. 8-7

Fla., Boca Grande—Joseph Spabaro, Fort Myers, erect \$25,000, 2-story, brick servants' dormitory; 32 rooms, 16 baths, built-up roof, steam heat; F. J. Kennard & Son, Archts., 303 Jack St., Tampa.

Fla., Boca Grande—Barron G. Collier, 220 W. 42nd St., New York, ready for bids about Sept. 1 for \$25,000 improvements to 3-story Gasparillo Inn; W. C. Sparklin, Archt., Pythian Bldg., Fort Myers.

Ga., Atlanta—Asa G. Candler, Jr., Candler Bldg., purchased 9-story Ten-Fifty Ponce de Leon Apartments, Highland Ave., and expend \$150,000 for additions and improvements; erect addition to garage in rear.

Miss., Meridian—P. J. Krouse, Archt., M-W Bldg., preparing plans for \$150,000, 48-apartment.

Va., West Point—R. T. Lipscombe, Sr., American Natl. Bank Bldg., Richmond, promoting organization of company to erect 50-room, fireproof hotel on 400-ft. site on York River; soon be ready for bids on structure, furnishings, laundry and bakery machinery and equipment; Lee-Smith-Vandevort, Archts.-Engrs., Sixth and Franklin St., Richmond. 9-19-29

### Miscellaneous

Miss., Hattiesburg—Hulett Undertaking Co., Dr. J. E. Hulett, Forrest St., having plans prepared by J. Frazier Smith, Goodwin Inst. Bldg., Memphis, Tenn., and ready for bids about Oct. 1 for \$30,000, 3-story, 70x70 ft., brick funeral home on Hay St., to be known as Forrest Hill; install \$6000 pipe organ; also erect residence adjoining car garage. 8-20

### Schools

Ala., Center—Cherokee County School Bd. erect \$10,000 building at Dixon Shop for Shiloh and Maple Grove Consolidated School Dist.

Ala., Montgomery—Montgomery County Bd. of Education, L. C. Cardinal, Pres., has plans

by Walter Ausfeld, Shepherd Bldg., and soon call for bids for auditorium and cafeteria addition to school on Highland Ave.; 2 stories and basement, brick, comp. roof. 7-17

Ala., Tuskegee—Tuskegee Institute, Dr. Robt. R. Moton, Pres., receives bids about Sept. 3 for \$225,000, 2-story and basement, rein. conc. and steel, brick and tile auditorium-gymnasium; comp. roof, stone trim; Taylor & Persley, Archts., Tuskegee; following contractors estimating: A. K. Adams Co., 542 Plum St., N. W.; J. S. McCauley Co., Bona Allen Bldg.; Southern Ferro Concrete Co., 70 Ellis St., N. E.; Aiken & Faulkner, 158 Auburn Ave., all Atlanta, Ga.; Algernon Blair, First Natl. Bk. Bldg.; Samford Bros., 301 Washington Ave.; Jas. Alexander, Upper Wetumpka Road, all Montgomery; A. J. Honeycutt Co., Martin Bldg.; D. T. Underwood, Pioneer Bldg.; Smallman Construction Co., 1109 Fifth Ave., S.; T. C. Windham & Sons, 1620 Fourth Ave., N., all Birmingham; Samuel Plato, 608 N. Walnut St., Louisville, Ky.

D. C., Washington—District Commrs., Room 509, Dist. Bldg., receive bids Sept. 2 for removing present hot air furnaces, etc., and installing complete new steam heating systems, including necessary remodeling in connection, in 4 schools; plans and specifications at Room 427, Dist. Bldg.

Fla., St. Petersburg—Pinellas County Bd. of Public Instruction soon ready for bids for \$25,000, 2-story, brick school on Clearview Ave.; asbestos shingle roof; Henry L. Taylor, Archt., Times Bldg.

Ga., Albany—Georgia Normal & Agricultural College, H. T. McIntosh, Chmn., receives bids Aug. 29 for dining hall; 1-story and basement, 82x112 ft., brick, hollow tile, stucco, fireproof, Indiana limestone trim; Daniel & Beutell, Archts., Georgia Savings Bank Bldg., Atlanta.

Fla., Grand Ridge—Jackson County Bd. of Public Instruction, Marianna, having plans prepared by Alvin R. Moore, Centennial Bldg., Tallahassee, for \$22,000 school.

Ky., Covington—Bd. of Education, reported, has plans by Hildreth & Beekman, 2018 Scott St., for \$250,000, 3-story and basement, rein. conc. and brick school on Greenup St.

La., Chatham—Following contractors estimating on \$40,000, 2-story, brick, 9-classroom school and repairs to present structure, bids Sept. 4 by Jackson Parish School Bd., Jonesboro: W. C. Salley, Ouachita Natl. Bank Bldg.; W. H. Blane; J. W. O'Brien, 307 Malvern St.; W. T. Simpson, 402 Filhoil Ave., all Monroe; R. L. Roland & Son, 1908 Lee St., Alexandria; McMichael Construction Co., City Bank Bldg.; J. M. Brown, Ricou-Brewster Bldg.; H. G. Hodges, City Bank Bldg., all Shreveport; F. W. Mitchell, Ruston; L. D. Davis, West Monroe; Bailey & Brewer, Winnfield; Albert G. Simms, Ringgold; A. E. Johnson, Dubach; Robert J. Jones, Pineville; E. E. Rabalais & Son, Bunkie; Geo. F. Lomax, James Bldg., Ruston, and Seymour Van Os, Merchants Bank Bldg., Shreveport, Asso. Archts. 8-14

La., Ethel—East Feliciana Parish School Bd., E. L. Dunn, Pres., Clinton, receives bids Sept. 3 for 2-classroom, frame Evergreen Rosenwald School.

La., Lafayette—Sisters of Mt. Carmel erect 2-story, 40x100 ft. brick residence building; contain community room, chapel, administration offices, music room, refectory, laundry, 16 bedrooms; comp. roof, wood and tile floors; Wm. T. Nolan, Archt., Canal Bank Bldg., New Orleans; bids in. 8-14

La., Rayville—Richland Parish School Bd. ready for bids in about 30 days for \$175,000, 3-story, rein. conc., brick, stone trim high school; Edw. F. Neild, Archt., City Natl. Bank Bldg., Shreveport. 6-19

La., Sully Island—Following contractors estimating on \$60,000, 2-story, rein. conc., brick, stone trim school, bids Sept. 2 by Catahoula Parish School Bd., Jonesville: Lee Ellis, Old Central Bank Bldg.; W. C. Salley, Ouachita Natl. Bk. Bldg.; W. H. Blane; Frank Masling, 1510 S. Grand St., all Monroe; Tudor & Ratcliff, Commercial Bank Bldg., Alexandria; E. E. Rabalais & Son, Bunkie; Knapp & East, Kaufman Bldg., Lake Charles; D. T. Chapman, Weick Bldg., Baton Rouge; A. G. Simms, Lake Village, Ark.; J. W. Smith & Associates, Archts., Ouachita Natl. Bank Bldg., Monroe. 8-7

La., Sugartown—Beauregard Parish School Bd., DeRidder, called election Sept. 16 in Dist. No. 7 on \$20,000 bonds to erect school.

Md., Baltimore—Park School, Liberty Heights Ave. and Western Maryland Ry., erect \$10,000, 1-story addition.

Miss., Jackson—Bd. of Trustees and Supt. of Mississippi School for Deaf receive bids Sept. 9 for repairs to buildings consisting of structural and plumbing; bids same date for interior and exterior painting, plastering, carpenter work, metal work, installation elec-

trical fixtures; plans from Frank P. Gates Co., Archts., New Merchants Bank Bldg.

Miss., Lucedale—George County Bd. of Education receives bids Sept. 6 for building for Rock Creek School.

Miss., Pascagoula—School Bd. plans \$30,000, 6-room addition to high school.

Mo., Jefferson City—Bd. of Curators, Lincoln University, I. C. Tull, Bus. Mgr., receives bids Sept. 10 for education building and home economics; separate bids as follows: General work; plumbing, sewerage and gas fitting; heating and ventilating; electric work; plans on file at offices I. C. Tull; Wm. B. Ittner, Inc., Archt., 3615 Olive St., St. Louis; and Builders Exchange, St. Joseph, and Midwest Contractor, Kansas City; obtainable from Mr. Ittner. 7-3

Mo., St. Louis—Bd. of Education, Geo. W. Sanger, Act. Comm. of Bldgs., receives bids Sept. 3 for shops building, power house and greenhouse.

N. C., Boone—Appalachian State Teachers College, J. M. Bernhardt, Chmn., Bldg. Comm., receives bids Sept. 2 for extension mains of steam distribution to Lovell Home, Watauga Academy, Science Hall and Golf Administration Bldg., connecting with present central heating plant; also revision heating system in Watauga Academy; plans from Dr. B. B. Dougherty, Boone, and Benton & Benton, Archts., Wilson.

N. C., Clyde—Haywood County Bd. of Education, G. C. Plott, Chmn., soon ready for bids for \$11,500, 1-story and basement, 96x53 ft., brick and tile auditorium; wood floors, comp. roof, steam heat; Breeze & Rivers, Archts., Castanea Bldg., Asheville.

N. C., Edenton—Bd. of Education soon let contract for school building.

N. C., Greensboro—Immanuel College, Dr. Henry Nau, Pres., having plans prepared by Harry Barton, Jefferson Bldg., for additions and alterations to administration building; \$40,000, brick, stone, trim, tar and gravel roof.

N. C., Troutmans—School Bd. soon let contract for school building.

Okla., Ponca City—Bd. of Education erect \$13,000 grade school in Sunnyside area.

S. C., Orangeburg—Bd. of School Commrs., W. A. Livingston, Chmn., has low bid from Price & Crook, Columbia, for \$25,000, 1-story, brick veneer elementary school; comp. roof, wood floors; J. B. Urquhart, Archt., Palmetto Bldg., Columbia. 8-7

S. C., Travelers Rest—Travelers Rest Consolidated High School Dist. voted \$30,000 bonds for school; James F. Whately, Greenville County Supt. of Education, Greenville; F. H. & J. G. Cunningham, Archts., 201-A E. Coffee St., Greenville. 8-14

Tenn., Memphis—Bd. of Education, W. J. Prescott, Pres., purchased site for \$355,000 Snowden Junior High School; building to be erected as soon as funds are available.

Tex., Kingsville—San Fernando Common School Dist. No. 5 has low bid at \$13,613 from Cage Construction Co., Corpus Christi, for 1-story, brick and rein. conc., 3-room school near Kingsville; John M. Marriott, Archt., Frost Natl. Bank Bldg., San Antonio. 8-14

Tex., Marquez—Marquez Ind. School Dist. Trustees receive bids Sept. 2 for \$12,000, 54x60 ft., 4-room and auditorium brick school; Wilder & Smith, Archts., Texas Theater Bldg., San Antonio.

Tex., Rio Grande City—Rio Grande City Ind. School Dist. votes Aug. 30 on \$140,000 bonds for school improvements including high school and grammar school; R. Newell Waters, Archt., Weslaco. 7-17

Tex., San Angelo—San Angelo Ind. School Dist., C. R. Hallmark, Sec., School Bd., having plans revised by C. C. Alexander, San Angelo Natl. Bank Bldg., for refiguring about Sept. 2 for 2-story and balcony, 158x105 ft., brick, tile and rein. conc. gymnasium at San Angelo High School; Anton F. Korn, Jr., Asso. Archt., Thomas Bldg., Dallas. 8-21

Va., Fort Union—Fort Union Military Academy plans swimming pool, golf course on 140-acre tract and athletic field.

W. Va., Bluefield—Beaver Pond Dist. Bd. Education, Edwin C. Wade, Sec., receives bids Sept. 6 to complete Ramsey School; Garry & Sheffey, Archts., Bailey Bldg.

### Stores

Ark., Pine Bluff—J. C. Penney Co., C. W. Shoptaw, Local Mgr., 116 Main St., remodel building, 206 Main St., formerly occupied by Best Theatre for department store.

Ga., Atlanta—L. P. Lewis Estates has plans by Morgan, Dillon & Lewis, Grant Bldg., for 2-story and basement, 100x120 ft., brick store, 755-63 Peachtree St., N. E.; stone trim, built-up roof.

Tenn., Nashville—Mrs. Amelia A. Timothy has permit for \$20,000, 2-story, brick and conc. store, 208 Sixth Ave., North; 32 ft. frontage; Asmus & Clark, Archts., Nashville Trust Bldg.

Tex., Pasadena — W. L. Williams erect frame mercantile building on Sterling Ave.

Tex., San Antonio—D. & A. Heinen, care Henry Steinbomer, Archt., Real Estate Bldg., remodel Rialto Theater on Houston St. for 2-story store to be leased to John Pentimman Trunk Co., 1321 Alamo Plaza; brick and conc., 38½x140 ft.; bids in.

Va., Norfolk — Grandy Estate, C. W. Grandy, Natl. Bank of Commerce Bldg., erect \$125,000 2-story, brick and steel arcade from Main St. to Plume St.; 30 stores on ground floor, office or storage space above; stone trim; Calrow, Browne & FitzGibbon, Archts., Royster Bldg.; bids in. 7-10

### Theatres

La., Lafayette—Southern Amusement Co., Bert Tiller, V.-P., 536 Kirby St., Lake

Charles, receives bids Sept. 2 for rein. conc., brick and steel theater; seat 1200 people; Herman J. Duncan, Archt., 120 Murray St., Alexandria; following contractors estimating: McDaniel Brothers, Kyle Bldg., Beaumont, Tex.; W. J. Quick, 1424 Bilbo St.; P. Olivier & Son, 114 Bilbo St., both Lake Charles; R. L. Roland, Alexandria; Caldwell Brothers, 816 Howard Ave., New Orleans; Clifford H. King, Prescott Lane, Baton Rouge. 6-26

La., Tallulah—M. M. Bloom ready for bids in few days for \$70,000, 1-story, 138x300 ft., steel frame and brick arcade; theater and 19 stores; comp. roof, terrace and wood floors; N. W. Overstreet, Archt., Standard Life Bldg., Jackson, Miss.; following contractors estimating: W. H. Blane, Monroe; Tudor & Ratcliff, Commercial Bank Bldg., Alexandria; Will Wilmoth, Camden, Ark.; Albert G. Simms, Lake Village, Ark.

Tex., Victoria—Rubin Frels receives bids Aug. 31 for brick, rein. conc. and steel theater; Stanley W. Bliss, Archt., Harlingen. 8-14

## BUILDING CONTRACTS AWARDED

### Bank and Office

Fla., Palm Beach—Phipps Palm Beach Co., The Plaza, let contract to Roderick C. Macneil, Inc., 336 S. Palm Beach Ave., both Palm Beach, for \$50,000 brokerage office; conc. steel and tile, Quarry Keystone veneer, 1 and 2 stories, 85x60 ft., clay and rubber tile floors; conc. foundation, tile roof; address proposals on furnishings, equipment, etc., \$35,000, to E. F. Hutton & Co., 61 Broadway, New York; Addison Mizner, Archt., Worth Ave., Palm Beach; footings in. 8-21

Ga., Atlanta—Ingalls Iron Works Co., 720 Fourth Ave. S., Birmingham, Ala., has contract for 1150 tons struc. steel for 14-story and basement addition to Citizens & Southern National Bank; Hentz, Adler & Shutze, Archts., Candler Bldg.; Southern Ferro Concrete Co., Contr., 70 Ellis St., N. E. 4-10

Md., Baltimore—Union Trust Co., Baltimore and St. Paul Sts., started work on \$200,000 interior alterations to bldg.; Smith & May, Archts., Balto. Tr. Bldg.; Reeder, Elser & Akers, Engrs.; Consolidated Engineering Co., Contr., 20 E. Franklin St. See Want Section—Building Material and Equipment. 8-21

Okla., Bartlesville—Phillips Petroleum Co., A. H. Riney, Ch. Engr., let contract to Rucks-Brandt Construction Co., Thompson Bldg., Tulsa, Okla., for addition to office bldg.; 12 stories and tower on Keller Ave., 10-story wing at rear of present bldg. and additional story to present structure; 228 ft. high; Keene & Simpson, Archts., 1005 Land Bank Bldg., Kansas City, Mo.; excavation completed. 6-26

Tex., Houston—Second National Bank let contract to American Construction Co. to remodel section of ground floor; additional entrance on Main St.

Tex., New Braunfels—Robt. Voightlander, Electric Bldg., Houston, has contract for bank fixtures and vault equipment for \$60,000 First National Bank; Gleescke & Harris, Archts., Norwood Bldg., Austin; Jeremiah Schmidt, Asso. Archt., New Braunfels; L. D. Royer, Mech. Engr., Smith-Young Tower; Walsh, Burney & Key, Inc., Contrs., 928 N. Flores St., both San Antonio. 8-21

Va., Covington—Virginia Public Service Co. let contract to J. S. Mathers & Co., Covington, for \$40,000 office bldg.; plans by Frank D. Chase, Inc., Engrs., 720 N. Michigan Blvd., Chicago, Ill.

Va., Richmond—Wise Granite & Construction Co., American Natl. Bank Bldg., has contract to erect eighth floor to Professional Bldg., Fifth and Franklin Sts., for Professional Building Corp., Dr. Lawrence T. Price, Pres., Prof. Bldg.; Marcellus E. Wright, Archt., American Natl. Bank Bldg., drawing plans.

### Churches

Ala., Geneva—Methodist Church laying foundation for \$12,000 bldg. to replace burned structure.

Ga., St. Simons Island—St. Xavier R. C. Church, Brunswick, erect St. Simon's Chapel; Spanish Mission type; plans by Cormac McGarvey; Murree & Duke, Contrs., Brunswick.

Ky., Louisville—St. Pauls M. E. Church, South, erect \$102,000 church and Sunday school, 2001 Bardstown Rd.; brick and conc.; H. G. Wittenberg, Contr., 320 S. Sixth St.

Mo., St. Louis—E. R. Allen and others, erect \$10,000 church, 7138 Southwest; brick, 2 stories, 37x75 ft., comp. slate shingle roof, hot air heat; Hamilton Co., Contr., both 7138 Southwest.

Okla., Tulsa—All Souls' Unitarian Church, Paul R. Mills, Chmn. Bd. of Trustees, completed basement walls for \$75,000 church and parish house, 14th St. and S. Boulder Ave.; auditorium seat 350; Colonial type, brick; M. L. McCune, Archt., Atlas Life Bldg., Tulsa; Smith & Walker, Consit. Archts., 80 Boylston St., Boston, Mass.; G. C. Morrow & Son, Contrs., 113 E. 18th St.

Tex., Taylor—First Methodist Church let contract to R. M. Van Horn, Fort Worth, for \$18,000 Sunday school; brick, 2 stories and basement, 40x78 ft.; Wm. C. Meador, Archt., Dan Waggoner Bldg., Fort Worth. 7-31

### City and County

Ala., Birmingham—Jefferson County Bd. of Revenue let contract at \$197,900 to Day & Sachs, 2400 Fifth Ave., South, for Jefferson County Alms House, Ketona; 1 two-story bldg. and 13 one-story bldgs.; bar joist and conc. slab, conc. floors and foundations, slate roofs; furnishings, equipment, etc., \$50,000; Turner & Van Arman, Archts., Martin Bldg. 8-21

Mo., Kansas City—City started work on Nelson Art Gallery and Atkins Museum of Fine Arts, 44th and Rockhill Rd., with Long Construction Co., 600 Rialto Bldg., as gen. contractor; modified Greek architecture, 3 stories, ground floor and mezzanine, 172x372 ft., windows on first and ground floors, artificial indirect lighting for second floor, tapestry hall in center of bldg. bet. north and south main entrances; court with Italian garden; auditorium to seat 700 and administrative offices on ground floor; exhibit halls on second; studio on top floor; 700-ft. approach to south entrance, using 50-ft. drop to street; \$3,000,000, including furnishings, exclusive of exhibits; Wight & Wight, Archts., 400 First Natl. Bank Bldg. 6-19

Okla., Dewey—Washington County Bd. of Commrs. let contract to J. B. Klein Bld. & Foundry Co., 1004 W. Second St., Oklahoma City, for 60x90-ft. hog barn and 60x90-ft. cow barn, Fair Grounds; \$10,000; steel, 1 story, galv. iron roofs. 8-21

S. C., Edgefield—Edgefield County Bd. of Commrs. started work on \$30,000 Reynolds Memorial Home by day labor, W. S. G. Heath, Supt. of Constr.; brick and tile, 1 story, 122x62 ft. 7-24

Tenn., Memphis—City let contract at \$13,464 to Consolidated Contractors, 638 East St., for Buntyn-Normal fire station, Southern Ave.; Henry J. Kramer, Archt., Goodwyn Inst. Bldg. 8-14

Tenn., Newport—Coke County Bd. of Commrs. let contract to H. C. Fonde & Son, 3253 Delwood Drive, Knoxville, Tenn., for \$100,000 courthouse; brick, terra cotta trim, rein. conc., 3 stories and basement; Manley & Young, Archts., 206 Medical Arts Bldg., Knoxville. 7-17

### Dwellings

D. C., Washington—John Brayshaw, 817 A St., N. E., let contract to Griffin Bros., 1343 H St., N. W., for \$14,000 residence, 3240 Patterson St., N. W.; brick and hollow tile, 2 stories and attic, oak, tile and Armstrong linoleum floors, Buckingham slate roof; General Electric refrigerator, Rund instantaneous

ous hot water heater, etc.; plans by Contrs.; materials purchased. 8-21

D. C., Washington—C. Wyant, Burlington Hotel, completed excavation for 2 dwellings, 715-17 Ogleshorpe St., N. W.; brick and tile, 2 stories, 19.10x32 ft., oak floors, conc. block foundations, tin roofs, built-in garages; owner builds. See Want Section—Building Material and Equipment. 8-21

Fla., Jacksonville—Mrs. E. R. White let contract to A. L. Clayton, Blum Bldg., for brick veneer residence, Ortega; Colonial type, 2 stories, U shape, asbestos shingle roof, steam heat; Marsh & Saxelbye, Archts., Consolidated Bldg.

Fla., Lake Wales—Geo. F. Fulford, Brookville, Ontario, Can., erect stucco and hollow tile residence, Mountain Lake; 2 stories, 82x60 ft., oak floors, tile roof, gas heat; G. A. Miller, Inc., Contr., 312½ Twigg St., Tampa, Fla.

Fla., Miami Beach—Dr. W. J. Fitzpatrick, 549 Meridian Ave., let contract to A. T. Harrison, Miami, for \$10,000 residence; rein. conc. block, 1 story, 28x55 ft., 4-ply asphalt roof; furnishings, equipment, etc., \$3500; A. Claude Ellis, Archt., Miami. 8-21

Fla., Monticello — Col. Benjamin Moore, Long Island, N. Y., let contract to Walker Bros., P. O. Box 12, Monticello, for supt.'s residence and stables; frame, 2 stories, 6 rooms; Philip A. Cusachs, Archt., 17 E. 49th St., New York; E. D. Fitchner, Asso. Archt., Child Bldg., Tallahassee, Fla.; Olmsted Bros., Landscape Archts., Brookline, Mass. 6-26

Fla., Orlando—Mrs. A. B. Watrous, Evanson, Ill., erect Spanish type residence, Parr Ave.; H. Ring Clauson, Archt., Irving Park Bldg., Chicago, Ill.; Howard Kiehl, Contr., 500 W. Central St., Orlando.

Ga., Atlanta—W. A. Williams, 934 Glenwood Ave., S. E., erect 2 brick veneer dwellings, 976-80 Woodland Ave., S. E.; 1 story and basement, wood floors, comp. roofs, hot air heat; day labor.

Ga., Atlanta—C. L. Chosewood, Jr., 604 Confederate Ave., S. E., erect 4 frame dwellings, 1072-74 Fortress Ave., S. W.; 1 story, 2 baths, 6 rooms, comp. roof; owner builds.

Ga., Atlanta—Dr. B. S. Bomar, 645 Lee St., S. W., erect brick veneer residence, 1074 Cascade Ave., S. W.; 1 story and basement, hardwood and tile floors, comp. roof, hot air heat; P. B. Hopkins, Archt., Palmer Bldg.

Ky., Paducah—Fred Roth, 433 Monroe St., started work on brick residence, Monroe St. near Fourth St.; 2 stories, 8 rooms; G. Tandy Smith, Jr., Archt., Guthrie Bldg.; Karnes & Sons, Contrs.

La., New Orleans—Ramoneda Realty Co. erect 4 double dwellings, Frenchmen St. near Milton St.; 1 story, asbestos roofs, orn. iron work; C. W. Saffel, Contr., 4922 Loyola St.

La., New Orleans—Denis A. Casey, 6612 Canal Blvd., erect single 2-story residence; orn. iron, rein. steel, tile work; work by sub-contract.

La., New Orleans—B. C. Johnson, Contr., 2524 Sage St., erect double dwelling.

La., New Orleans—E. L. Markel, Bldr., 3838 Louisiana Ave., Pkwy., erect raised double dwelling, Joseph and Tchoupitoulas Sts.; asbestos roof, sheet metal work.

Md., Baltimore—Mrs. John Gordon Murray, 9 E. Chase St., erect \$12,000 cinder block residence and garage, 6001 Charlesmeade Rd.; 2 stories, 64x28 ft. and 20x20 ft., slate rofo, hot water heat; T. Worth Jamison, Archt., 12 E. Pleasant St.; Clarence L. Jarvis, Contr., Charles Apt.

Md., Baltimore—W. E. McKissick, 100 W. Centre St., erect \$16,000 residence and garage, Homeland, 215 Upnor Rd., stone, 2½ stories; Peyton B. Strobel Construction Co., Contr., 206 E. Lexington St.

Md., Baltimore—R. B. Construction Co., 112 W. Lexington St., erect 6 dwellings and garages, 3019-29 Spaulding Ave.; brick, 2 stories, 20x31 ft. and 10x18 ft., slag roofs; \$20,000; Geo. Wessel, Archt., 601 W. 40th St.; owner builds.

Md., Baltimore—C. K. Wells, Jr., Bldr., 3538 Old York Rd., plans 5 dwellings in Homeland, 5213, 5400 and 5402 St. Alban's Way, and 5209-11 Springlake Way.

Miss., Columbus—W. F. Bruce, care Bruce-Housel Hardware Co., started work on brick veneer residence, P. X. Falk sub-division; R. O. Caldwell, Contr.

Mo., St. Louis—Edgar Peters, care Dickey Construction Co., Louderman Bldg., erect \$50,000 residence, Warson Rd. near Litzinger Rd.; brick, 2 stories, 106x32 ft.; LaBeaume & Klein, Archts., Amer. Tr. Bldg. 8-14

Mo., St. Louis—Wm. B. Deane, 53 Portland Place, let contract to Dickey Construction Co., Louderman Bldg., for \$80,000 residence, Warson and Litzinger Rds.; brick, 2 stories, 125x41 ft.; LaBeaume & Klein, Archts., Amer. Tr. Bldg. 7-31

N. C., Charlotte—Home Real Estate & Guaranty Co., S. T. Henderson, Pres., 219 N. Tryon St., erect 2 dwellings, Malvern Rd., and West Boulevard; \$19,000; work started.

N. C., Old Town, Winston-Salem—Geo. Flynt, 928 North Boulevard, let contract to L. C. Kimel & Son, 430 Sprague St., for \$37,000 residence; brick, 2 stories and basement, hardwood and tile floors, slate roof; Northup & O'Brien, Archts., Starbuck Bldg., both Winston-Salem. 8-21

Tenn., Knoxville—Fielden Realty Co., 600 Market St., erecting 2-story Colonial dwelling, Kenilworth Drive; \$12,000, slate roof, 8 rooms, gum interior finish; J. Ed Campbell, Kenilworth Drive, erecting \$10,000 residence; English type, brick veneer, 2 stories, 8 rooms, slate roof; W. A. Rutherford, Jr., Archt., Kingston Park; Fielden Realty Co., Contr. 8-21

Tex., Austin—Dr. J. S. Koenig, 4209 Speedway Ave., let contract to Wm. Peterson, 1303 E. Second St., for brick veneer residence, Aldridge Place; 1 story and part basement, oak and tile floors, asbestos shingle roof, gas heat; Roy L. Thomas, Archt., Littlefield Bldg. 7-24

Tex., Columbus—H. W. Miekow started work on \$10,000 residence; brick veneer, 2 stories, 2 baths; E. H. Fleming Co., Contr., 2139 Sunset Blvd., Houston.

Tex., Houston—Russell Brown Co., Main St., erecting \$15,000 dwelling, 2240 Looscan Lane; brick veneer, 8 rooms.

Tex., Houston—Fantham & Fantham, Second Natl. Bank Bldg., erect \$12,000 dwelling, 2317 Sheridan Rd., Windemere; brick veneer, 2 stories, 30x37 ft., hardwood floors, 2 baths, lavatory, Bessler disappearing stairway, elect. refrigeration; F. Z. Dailey Construction Co., Contr.

Tex., Houston—Geo. D. Roch started work on brick veneer residence, 1112 St. Josephs St.; brick veneer, 2 stories; L. R. Erwin, Contr., 520 Peden St.

Tex., Houston—C. A. Nichols, 1704 Harold St., erecting English type residence, Braeswood; brick veneer, 2 stories, 2 baths, lavatory; Wm. G. Rothermel, Archt., Post-Dispatch Bldg.; H. C. Vogt, Contr., 2411 Binz St.

Tex., Houston—Brian Mead, 2228 Demston St., let contract to Benson-Hall Co., Post-Dispatch Bldg., for 2-story brick veneer residence, 2128 Chilton Rd.

Tex., Houston—G. W. Tuttle, 2619 Main St., started work on duplex, 4707 Chenevert St.; brick, 12 rooms; Pat Lundine, Contr.

Tex., Houston—E. C. Afferbach, Second Natl. Bank Bldg., started work on brick veneer residence, 1902 Albans Rd.; 2 stories, 6 rooms; L. R. Ashmore, Contr., 515 E. Ninth St.

Tex., Houston—T. M. Howard, 4221 McKinney St., started work on residence, Wichita Ave., Southwood.

Tex., Houston—Dr. H. L. A. Farrell, First Natl. Bank Bldg., started work on residence Southmore, Southwood; Stanley W. O'Brien, Contr.

Tex., Houston—J. M. Morgan, Mason Bldg., started work on 2 duplexes, 2000 block Calumet Drive; 2 stories, 12 rooms.

Tex., McAllen—H. J. Marquart, Garfield, Kan., started work on \$15,000 residence.

Tex., San Antonio—Richey-Kirby Lumber Co., 2110 S. Flores St., erect 4 additional dwellings, Nogalitos Heights.

Tex., San Antonio—O. E. Burg, 1530 W. Rosewood St., plans 2 dwellings, Nogalitos Heights, in addition to 2 dwellings being erected under contract.

Tex., San Antonio—Higginbotham-McCord Co., 1017 W. Laurel St., plans bungalow, Nogalitos Heights, in addition to 2 dwellings under construction.

### Government and State

Miss., Greenwood—Treasury Dept., Jas. A. Wetmore, Act. Supv. Archt., Washington, D. C., let contract at \$51,000 to Batson-Cook Co., West Point, Ga., for extension and remodeling of post office; brick and tile, rein. conc., stone trim, 2 stories. 8-7

Va., Richmond—Electro Construction Co., Glenn Bldg., Atlanta, Ga., has elect. contract for \$900,000 extension to post office, custom house and court house; National Construction Co., Inc., Glenn Bldg., Atlanta, Ga., Gen. Contractor. 7-31

Va., Roanoke—Treasury Dept., Jas. A. Wetmore, Act. Supv. Archt., Washington, D. C., let contract at \$423,294 to Worsham Bros., Empire Bldg., Knoxville, Tenn., for post office, custom house, etc.; granite base, brick and stone above, hollow tile, 3 stories and basement, 205x156 ft., comp. and tile roof, marble, tile and terrazzo work. 8-21

### Hospitals, Sanitariums, Etc.

Ala., Gadsden—Ingalls Iron Works Co., 720 Fourth Ave., S., Birmingham, has contract for about 100 tons struct. steel for \$250,000 Forrest General Hospital for General Hospital Corp.; Wm. Leslie Welton, Archt., Amer. Traders Bk. Bldg., Birmingham; W. H. Mayben & Son, Contrs., Gadsden; remodel 80x200-ft. main bldg.; erect two 56x45-ft. wings; 3 stories; brick, steel and conc.; foundation of 1 wing completed. 8-7

Ga., Savannah—Charity Hospital Exec. Comsn., Robt. M. Hitch, Chmn., Savings Fire Ins. Bldg., let contract to Olaf Otto, 412 E. Bay St., for \$125,000 charity hospital for negroes; rein. conc., brick and tile, stone trim, tile, terrazzo and comp. floors, comp. roof, steam heat; Cletus Bergen, Archt., Liberty Bk. & Tr. Bldg. 6-26

Miss., Lexington—Holmes County Bd. of Supvrs. let contract to S. G. McCool, Kosciusko, for \$30,000 Holmes County Community Hospital; semi-fireproof, rein. conc., brick, hollow tile, stone trim, 1 story, 157x87 ft., asphalt shingle or tile roof, steam heat; N. W. Overstreet, Archt., Standard Life Bldg., Jackson. 8-7

Mo., St. Louis—Sisters of St. Mary, Clayton and Bellevue Sts., excavating for \$250,000 nurses' home and school; rein. conc., 7 stories, 60x150 ft., asphalt roof, conc. foundation; O'Meara & Hills, Archts., Arcade Bldg., St. Louis; Schuette & Meyer, Engrs., St. Paul, Minn.; Wimmer Contracting Co., Contr., 916 Victoria Bldg., St. Louis. See Want Section—Building Material and Equipment. 8-21

Okla., Oklahoma City—Wesley Hospital, 12th and Harvey Sts., has poured second floor slab for \$125,000 addition; rein. conc., brick, tile partitions, 3 stories and full basement, 45x133 ft., terrazzo floors over conc. base, Barrett roof or equal; Edw. D. Gahl, Archt., Continental Bldg.; T. F. Collier Engineering Co., Engr., Okla. Savings Bldg.; W. S. Bellows Construction Co., Contr., 612 Okla. Sav. Bldg.; extension of low pressure steam heating plant and plumbing, L. C. Kimsey Heating & Plumbing Co., 612 N. Hudson St.; elect. work, Gaddis Pentress Electric Co., 416 N. Robinson St.; rein. steel, Capitol Steel & Iron Co., 1726 S. Agnew St.; hollow metal windows (Willis), and metal cubicle partitions, Lusco Brick & Stone Co., 1 Commerce Exch. Bldg.; metal door bucks, Bissel Builders Supply Co., Colcord Bldg.; elevators not let; Gen. Contr. desires sub-bids on plastering, painting and millwork. 8-21

### Hotels and Apartments

Ark., Batesville—Young Brothers have contract to erect \$25,000, 2-story, 60x90 ft., stone, brick trim hotel on site of present Barnett Hotel, College and Broad Sts.

Fla., Daytona Beach—Thomas Oyama, Oyama Bldg., erect apartment hotel on site of Oyama Arcade; Alex W. Hermanson, Contr., 414 Butler Blvd.

Fla., Lakeland—H. B. Trauger, 2600 Cleveland Heights Blvd., has contract to erect addition and remodel apartment; \$10,000, 2 stories, frame, comp. roof, wood floors, gas heat.

Ga., Atlanta—Mrs. Ella C. Swinney, 354 Brooks Ave., N. E., erect \$13,000, 2-story and basement, brick veneer apartment, 1625 McLendon Ave., N. E.; comp. roof, hardwood floors, hot air heat; owner builds by day labor.

Ga., Atlanta—Peter Poulus, 195 Garnett St., S. W., let contract to Chas. H. Landrum, 1005 Crew St., S. E., for repairs to apartment building, 320 Atlanta Ave., S. W., recently damaged by fire; brick veneer, wood joist, comp. roof, hardwood floors.

Ga., Brunswick—Coastal Hotel Co., Alfred W. Jones, Pres., let contract to Ledsinger & Turner for additions and alterations to Cloister Hotel kitchen and dining room; Francis L. Abreu, Archt., Inc.; all material purchased; sub-contracts closed.

Tex., Houston—Mrs. B. D. Hargrave let contract to G. W. Batton for \$10,000, 40x44 ft., 2-story, brick veneer apartment, 1210 Heights Blvd.

### Miscellaneous

La., Alexandria—Kelly Undertaking Establishment, 1315 Fifth St., let contract to C. M. Waters, Harris St., for 2-story frame funeral home on Fifth St.

La., New Orleans—Louisiana Jockey Club erect two 200x40 ft. brick and frame horse stables at Fair Grounds, Belfort, Lopez and Castiblene Sts.; galvanized iron roof; Otis W. Sharp, Contr., 144 Carondelet St.

Mo., St. Louis—Forest Park Highland Exhibition & Amusement Co., B. C. Brinkman, Pres., 5600 Oakland Ave., reported, construct 118x268 ft. ice rink for arena; under supervision R. C. McCoy, Engr., 208 W. 12th St., Tulsa, Okla.

Tenn., Nashville—Bryer & White, Contrs., 311 Church St., started work on \$25,000 gymnasium for Bethlehem Center, under supervision of Methodist Episcopal Church, South, 15th Ave. and Cedar St.; 61x119 ft., 1-story, brick; Donald Southgate, Archt., Nashville, Trust Bldg.

Tex., Dallas—Following sub-contracts awarded on stadium under construction for State Fair of Texas for which Central Contracting Co., Athletic Bldg., has general contract: Misc. iron, Southern Ornamental Iron Co., Construction Bldg.; excavation, Sifford Hill Co.; hardware, Huey & Philp Hardware Co., 1029 Elm St.; rein. conc., Concrete Engineering Co., Construction Industries Bldg.; Premix conc., Penniman Gravel & Material Co., 3000 Junius St., all Dallas; redwood, Clem Lumber Co., 2500 Live Oak St., Dallas, and Great Southern Lumber Co., Bogalusa, La.; Mark Lemmon, Archt., Construction Industries Bldg.

Tex., Houston—I. S. Lewis, 2637 Odin Ave. started work on 2-story, brick veneer funeral home.

Tex., McAllen—W. L. Morrison, Candler Bldg., Atlanta, Ga., let contract to M. R. Nelson, McAllen, for \$30,000, 2-story funeral home.

### Railway Stations, Sheds, Etc.

La., Monroe—Illinois Central R. R., A. F. Bleass, Ch. Engr., Chicago, Ill., let contract to W. C. Salley, Ouachita Natl. Bank Bldg., Monroe, for \$30,000, 40x130 ft., brick building, ReSiard and 7th Sts.; American Railway Express Co., Lessee.

Mo., St. Louis—G. Locke Tarlton Co., 411 N. Seventh St., has contract for excavation for \$5,000,000, 20-story office terminal and warehouse building, 12th, High and Morgan Sts. and Lucas Ave., for Illinois Terminal R. R. System, E. S. Hight, Ch. Engr., Chicago; 12 stories to contain 1,000,000 sq. ft. warehouse space; 8-story tower for 160,000 sq. ft. of office space; Mauran, Russell & Crowell, Archts., Chemical Bldg.; J. A. Hooke, Constt. Engr., Buder Bldg. 7-17

### Schools

Ark., Amity—Amity Special School Dist. Trustees started work on brick veneer, 7-classroom and auditorium grade school; D. G. Allen, Contr., Malvern.

Ark., Dover—Pope County Bd. of Education, Tom D. Bullock, Supt., Russellville, let contract to Jim Murphy, Dover, for \$10,000, 1-story brick veneer school at Dover; also let contract to Smith, Biggs & Smith, Russellville, for \$7634, 1-story, brick veneer high school at London.

D. C., Washington—Electro Construction Co., Glenn Bldg., Atlanta, has contract for electrical work for \$750,000 Alice Deal High School for which National Construction Co., Atlanta, has general contract; John A. Roebelin's Sons Co., Trenton, N. J., furnishing electrical wires and cables; A. L. Harris, Municipal Archt., Dist. Bldg., Washington. 7-31

D. C., Washington—District Commrs., Room 509, Dist. Bldg., construct athletic field, including cinder running track, tennis, handball and basket ball courts and wire enclosure at Francis Jr. High School; A. L. Smith & Co., Contrs., 2539 Pennsylvania Ave., N. W. 7-22

Ga., Athens—University of Georgia, Harrison Jones, Chmn., let contract to John K. Davis, Southern Mutual Bldg., for 2-story and

basement, brick armory building and remodeling dormitory; tar and gravel roof.

Ga., Athens—University of Georgia, Harrison Jones, Chmn., Bldg. Comm., let contract to Potter & Shackelford, Allen Bldg., Greenville, S. C., for Harold Hirsch Hall; \$100,000, 3 stories and basement, 118x50 ft., rein. conc., brick, struc. steel and hollow tile; Hentz, Adler & Shutze, Archts., Candler Bldg., Atlanta.

Ga., Cedartown—School Bd. let contract to C. W. Cooper for 1-story, 38x22 ft., stucco and hollow tile addition to school.

Ga., Gainesville—Hall County Bd. of Education, J. O. Waters, Chmn., let contract to Howard Wofford for 4-classroom and auditorium, brick veneer school; comp. roof, wood floors.

La., Monroe—Ouachita Parish School Bd. let contract to L. D. Davis to remodel lavatories in grammar school on S. Grand St.; to Standard Heating & Plumbing Co., plumbing in Calhoun High School; to John McAllister for plumbing in Okaloosa teacherage and Mount Nebo School; J. W. Smith & Associates, Archts., Ouachita Natl. Bank Bldg.

La., Vivian—Caddo Parish School Bd., E. Weldon Jones, Shreveport, let contract at \$95,212 to F. C. McClanahan, Homer, for 2-story brick and conc., 12-classroom school; bids for auditorium and ventilating rejected; Edw. F. Neild, Archt., City Bank Bldg., Shreveport.

Md., Salisbury—Following sub-contracts awarded on \$300,000, 3-story, rein. conc., brick, steel and stone high school under construction for which The Cogswell Construction Co., 406 Park Ave., Baltimore, has general contract: Excavating, Rhodes Construction Co., Wilmington, Del.; brick masonry, Mowbray & Tyler, Cambridge; granite and bluestone, David M. Andrew Co., Sisson and 26th St.; struc. steel, Dietrich Brothers, 220 Pleasant St.; plastering, Ernest Brannock, 162 4 Eutaw Place; ash hoist, Gillis & Geoghegan, care Vincent Eastwood, Munsey Bldg., all Baltimore; limestone, A. H. Thompson Stone Co., Ellettsville, Ind.; rein. steel, Concrete Steel Co., 2 Park Ave.; chimney, American Chimney Corp., 147 Fourth Ave., both New York; misc. and orna. iron, Poits Manufacturing Co., Mechanicsburg, Pa.; millwork, E. S. Adkins & Co.; waterproofing, roofing and sheet metal work, Carl L. Goslee Roofing Co.; electric work, hardware, L. W. Gunby Co.; plumbing and heating, Lewis T. Morgan & Son, all Salisbury; painting, W. L. Arnold, Red Lion, Pa.; Smith & May, Archts., Calvert Bldg.; James Posey, Consit. Engr., Baltimore Trust Bldg., both Baltimore.

Miss., Goodman—Holmes Agricultural High School and Junior College, W. P. Ellis, Pres., Bd. of Trustees, let contract at \$78,300 to Keeton & Fairley, Hattiesburg, for building program as follows: Dormitory to house 100 students, remodel present dormitories, erect auditorium annex, improve administration building, brick veneer home science building, erect home for supt.; heating and plumbing, \$14,800, S. S. Richard, Franklin; electric, 3633, Fatheree Electric Co., 111 N. Lamar St., Jackson, Miss.; turbine pump, \$1088, Layne-Central Co., Chelsea Ave., Memphis, Tenn.; J. M. Spain, Archt., Merchants Bank Bldg., Jackson.

Miss., Jackson—Mississippi Building Coman., W. C. Trotter, Sec., let contract at \$42,275 to Dye & Mullings, Columbia, for 2-story, brick school and dormitory for negroes at Mississippi School for Deaf; Frank P. Gates Co., Archts.-Engrs., New Merchants Bank Bldg.

Miss., Lucedale—Basin Consolidated School Dist. Trustees, care T. L. Adams, Supt., George County Bd. of Education, let contract at \$10,745 to C. J. Trowbridge for 1-story, 53x132 ft., brick school; wood floors asbestos roof; Hutchisson, Holmes & Hutchisson, Archts., First Natl. Bank Bldg., Mobile, Ala.

N. C., Belmont—Belmont Abbey College erecting gymnasium and field house; building to cost \$56,000, 120x84 ft., fireproof; Rev. Father Michael is architect and constructing with help of local contractors; material to be purchased locally.

N. C., Salisbury—Livingston College, Wm. J. Trent, Pres., let contract to Chas. W. Christian, 937 Providence Road, Charlotte, for 2-story, brick central heating plant; tar and gravel roof; Hentz, Adler & Shutze, Archts., Candler Bldg., Atlanta, Ga.; Willard D. Rogers, Asso. Archt., Salisbury.

Okl., Goodwell—State Bd. of Agriculture, State House, Oklahoma City, erect \$25,000, 1-story mechanical building; Layton, Hicks & Forsyth, Archts., Brannin Bldg.; Kreipke Construction Co., Contr., 708 W. Grand Ave., both Oklahoma City.

Tenn., Nashville—Following sub-contracts awarded on buildings under construction at Meharry Medical College for which Angle-Blackford Co., American Bank Bldg., Greensboro, N. C., has general contract at \$1,344,000: Excavation, masonry work, Bush Building Co., Eighth Ave., N.; elevator equipment Otis Elevator Co., 113 Fifth Ave., N.; refrigeration and ice making machinery, plumbing and heating, John Bouchard & Sons Co., 1024 Harrison St.; copper covered and tin clad doors, Geo. W. Ruth & Co., 149 Fourth Ave., N.; finished hardware, Keith Simmons Co., Inc., 11 Cummins Station; Rol-screens, Southern Screen Weatherstrip Co., 1814 Church St.; Clyde hoisting engine, Wilson-Weisner-Wilkinson Co., 10 S. Fatherland St.; limestone and granite, D. Y. Johnson Stone Co., 720 Argyle Ave.; lumber, Norvell & Wallace, 601 Broad St.; conc., Nashville Ready-Mixed Concrete & Supply Co., Boscobel St.; roofing and sheet metal, C. H. Reese, 1309 Church St., all Nashville; laundry equipment, Troy Laundry Machine Co., 2231 S. Parkway, Chicago, Ill.; marble, tile and terrazzo, R. N. Vanderberry, 1 Main St., Wosena, Roanoke, Va.; lathing and plastering, James A. Smith & Son, 1021 Gloria Ave., Durham, N. C.; electrical work, Sanborn Electric Co., Indianapolis, Ind.; acoustical treatment, Smith Murray, Inc.; Browne windows, Richey, Browne & Donalds, Inc.; erect Browne windows, Roesch & Associates, Inc.; pneumatic tube system, Lamson Co., all Syracuse, N. Y.; sterilizer equipment, Wilmost Castle Co., Rochester, N. Y.; painting, William Wil-son Co., Bona Allen Bldg.; radical brick stack, Moore Broach Engineering Co., Forsyth Bldg.; millwork, Phoenix Planing Mills Co., 719 Highland Ave., N. E., all Atlanta, Ga.; hollow metal doors, elevator enclosures, Niedringhaus, Inc., 5739 Natural Bridge St., St. Louis, Mo.; misc. and orna. iron, J. D. Wilkins, W. Lee St., ext.; cast stone interior window stools, Arnold Stone Co., 916 Warren St.; struc. steel, Carolina Steel & Iron Co., S. Elm St.; steel windows, Truscon Steel Co., Jefferson Bldg., all Greensboro, N. C.; Gordon & Kaelber, Archts., Rochester, N. Y.

Tex., College Station—Agricultural and Mechanical College has plans in progress by Prof. F. E. Giesecke, College Archt., and ready for sub-bids about Sept. 1 for brick and rein. conc., 80-room dormitory; Will A. Orth, Supt. of construction.

Tex., El Paso—Smelter School Dist., care El Paso County Bd. of Education, let contract at \$25,000 to J. C. Worthington & Son, for 1-story, brick school; 2 wings 58x31 ft. each, auditorium 93x52 ft.; oak and maple floors, comp. roof; Trost & Trost, Archts., both Two Republics Bldg.

Tex., Houston—Houston Ind. School Dist. Trustees let contract to L. B. Geiger, 2715 Palm St., for Taylor Vocational School.

Tex., Port Arthur—School Bd., L. B. Abbey, Sec., let contract at \$28,850 to Christy-Dolph-Collins Construction Co., 501 Procter St., for 8-room, brick, hollow tile and stucco addition to Lamar School; Mark Leamon, Archt., Construction Industries Bldg., Dallas.

Tex., Fredericksburg—School Bd., H. H. Sagebiel, Pres., let contract at \$34,889 to George E. Wieland, 106 E. 25th St., Austin, for 1-story, 138x57 ft., 7-classroom, brick, tile, rein. conc. and cast stone school; wood and cement floors; Edward Stein, Archt., care Stein Lumber Co., Fredericksburg; W. E. Simpson Co., Engrs., Milam Bldg., San Antonio.

Va., Roanoke—Roanoke County Bd. of Education erect school at Bent Mountain; Wood Construction Co., Contr., United Cigar Stores Bldg.; \$31,000, one story, 76x120 ft., brick, built up roof; plans by Raymond V. Long, State Office Bldg., Richmond; pouring foundation.

Va., Pearisburg—Giles County School Bd. erect school at Big Stony Creek; C. H. Hoback, Contr., Pulaski.

### Stores

La., New Orleans—C. A. Ramsey, Agent, 831 Perdido St., let contract at \$13,000 to Geo. J. Lupo, 4925 S. Tonti St., for 2-story, 56x120-ft., brick building and 1-story garage, St. Charles Ave. between Thalia and Erato Sts.; comp. roof, conc. floors.

La., New Orleans—L. Serenton erect \$12,400 brick commercial building and garage on St. Charles St. between Thalia and Erato Sts.; comp. and metal roof; Geo. J. Lupo, Contr., 4925 S. Tonti St.

Mo., Richland—Following erecting buildings to replace recently burned structures: Miller, cobble stone building for Mirror Newspaper Office; U. L. Wall, Contr.; C. W. Warren, 1-story and basement building for restaurant; Ed Lingsweiler, 2-story, brick

building for Richland Hardware & Furniture Co. and Masonic Lodge; Saven Bros., Contr.; H. E. Warren, Jr., and H. R. Cowan rebuilding 1-story, brick theater; John O. Elliott, Contr.

N. C., Charlotte—Home Real Estate & Guaranty Co., S. T. Henderson, Pres., 219 N. Tryon St., started work on interior and exterior improvements to five stores on S. Church St.

N. C., Greensboro—Ellis-Stone & Co., John A. Stone, Pres., 226 S. Elm St., erect \$10,000 addition to store, fixtures and furnishings, \$10,000; Harry Barton, Archt.; Angle-Blackford Co., Contrs., American Natl. Bank Bldg.

Tex., Gonzales—C. E. Dilworth let contract to Fred B. Meisenholder for brick, 3-store building.

Tex., Waco—Stokes Seed Co., Reed Lehman, V. P.-Gen. Mgr., started work on 1-story, 30x120 ft., hollow tile and stucco building; T. E. Carpenter, Contr.; R. Newell Waters, Archt.

Va., Roanoke—Following sub-contracts awarded on \$100,000, 3-story, steel and terra cotta store under construction for S. D. Ferguson, 209 1/2 First St., S. W., and E. M. Funkhouser, Boxley Bldg., leased to Montgomery Ward & Co., Chicago: Struc. steel, Virginia Bridge & Iron Co.; linoleum floors, Thurman & Boone Co., 1405 Jefferson St.; elevators, Otis Elevator Co., Boxley Bldg.; Stone-tile, metal lath, rein. bars and welded fabric, orna. and misc. iron and steel, Kalomeln, tin clad and rolling doors, masonry units, Colormix master builders floors, all by Stone-Tile Supply Co., Cleveland and 17th St., S. W.; Ironite, Western Waterproofing Co., by Stone-Tile & Supply Co.; artificial stone, Economy Cast Stone Co., all Roanoke; Martin Brothers, Gen. Contrs., 209 1/2 First St.; Louis P. Smithey, Archt., 112 Kirk Ave., W.

### Theatres

Ark., Helena—Paramount-Publix Theatres Corp., Paramount Bldg., New York, let contract at \$37,946 to McArthur & McLemore, 611 22nd Ave., Meridian, Miss., for theater to seat 1500 people; Emile Weil, Inc., Archt., Whitney Bank Bldg., New Orleans, La.

Tex., San Antonio—Riverside Improvement Co., W. J. Lytle, Texas Theater Bldg., construct arcade between Gunter Bldg. and Rabe Bldg. on St. Mary's St.; conc. foundations, brick, struc. clay tile, cast stone, stucco, struc. steel, orna. iron, steel deck; Robert Boller, Archt., 114 W. Tenth St., Kansas City, Mo.; Cone Construction Co., Contr., Alamo Natl. Bank Bldg.

## \$2,500,000 CONTRACT ON \$12,000,000 PIPELINE

### Big Oil Well Development Announced

Ashland, Ky.—Contract has been awarded by the Central Indiana Gas Co., a subsidiary of the Central Public Service Corp., Chicago, Ill., to the Youngstown Sheet & Tube Co., Youngstown, Ohio, at approximately \$2,500,000, for 35,000 tons of 18-inch welded steel pipe for a 260-mile gas pipe line from wells in eastern Kentucky to markets in central Indiana. The entire project will cost about \$12,000,000.

In connection with the gas line project, it is announced that the Public Service Engineering Co., also a subsidiary of the Central Public Service Corp., has taken over 132,000 acres of gas lands in southeastern Kentucky for immediate development. The company has established an office in the Guaranty Bank Building, Lexington, Ky., and will drill approximately 100 wells during the remainder of the year. The lands are situated in the Knott County field and gas to be taken from them will be transported by the new pipeline. The cost of this development is also estimated at \$12,000,000.

# WANT SECTION

## THE CLASSIFICATIONS IN THIS SECTION ARE:

Machinery and Supplies	Building Materials and Equipment	Bids Asked
Under this heading are reported requests for data, prices and literature and information on machinery, supplies and miscellaneous materials of a wide variety.	This division comprises all classes and kinds of materials and equipment used in building and construction projects of every kind.	Includes bids asked by U. S. Government, States, districts, municipalities, firms and individuals for machinery, materials, supplies and construction work.
<i>Items in this department are published without charge and these columns are open for the publication of wants of all kinds relating to construction work, machinery, materials and supplies.</i>		

### Machinery and Supplies

**Carbon Black Production Equipment.**—Universal Gas Co., Oakes Brown, Sales Mgr., 1208 New Merchants Bank Bldg., Jackson, Miss.—Wants prices and data on equipment for producing carbon black.

**Electric Motors.**—Electrical Equipment Co., Inc., P. O. Box 1445, Raleigh, N. C.—Wants prices and data on following General Electric motors: 10-5-h.p., 1800-r.p.m., 220-volt, 3-phase, 60-cycle squirrel cage type, good condition or burned out; 10-5-h.p., 1200-r.p.m., 220, 440 or 550-volt, good condition or burned out; 5-7½-h.p., 1800-r.p.m., 220-volt; 2-10-h.p., 220-volt, 3-phase, 60-cycle; 2-15-h.p., 900-r.p.m., 220-volt, 3-phase, 60-cycle; 3-20-h.p., 1800-r.p.m., 220-volt, 3-phase, 60-cycle; 2-20-h.p., 1200-r.p.m., 220-volt, 3-phase, 60-cycle.

**Creosoting Plant Equipment.**—D. W. Totten, Box 1195, Fort Pierce, Fla.—Wants prices and data on equipment and machinery for creosoting plant.

**Jaw Crusher.**—Johnson and Hoelher, Inc., (Mchy. Dealer), Fernwood, Pa.—Wants prices and data on 36x48-in. manganese fitted jaw crusher, can be slightly larger or smaller; requests full details, condition, age, location.

**Linoleum Tile and Strip Cutting Machinery.**—H. G. Wood, P. O. Box 853, Richmond, Va.—Wants prices and data on machinery for cutting linoleum tile and strips.

**Log Washer.**—McCrary Exploration Co., Box 11, Cleveland, Ga.—Wants prices and data on used small log washer to handle minimum of 10 tons saprolitized (clay and quartz) gold vein material daily, good condition.

**Pile Hammers (Steam).**—Lewter F. Hobbs, Inc. (Mchy. Dealer), P. O. Box 483, Norfolk, Va.—Wants prices and data on 3 Vulcan steam pile hammers; No. 0, No. 1 and No. 2.

**Power Plant Unit.**—H. B. Chapman, Pres., Shenandoah Caverns, Va., developing caverns and park near New Market, Tenn., and wants 1 or 2 power units to furnish 75 to 150 h. p. for caverns; may be able to use several small units for present; can use good second hand; in event satisfactory deal cannot be made with power company will need standby power from 100 to 150 h.p.

**Pumps.**—B. K. Hasho, Courtland, Va.—Wants prices and data on force pumps.

**Shovel Dipper.**—R. P. Johnson (Mchy. Dealer), Wythesville, Va.—Wants prices and data on 1½-yd., used dipper, without stick, for No. 45-C Bucyrus shovel.

**Steel Rollers.**—B. K. Hasho, Courtland, Va. Wants to contract with firm in position to make pair of special steel rollers for crushing marl.

**J. K. Bivins Lumber Co., Mobberly and Young St., Longview, Tex.**—Wants prices and data on following:

- (1) Planing Mill Machinery
- (2) Sawmill Machinery, Engines and Boilers—portable
- (3) Tractors and cultivators—farm.

### Miscellaneous

**Felts (Wool and Cotton), Etc.**—Power Specialty Co., P. O. Box 1326, Greensboro, N. C.—Wants samples and quantity prices on wool and cotton felts, of porous, absorbent qualities, also on waterproofed fabric similar to auto top covering.

### Building Material and Equipment

**T. H. Johnson, Contr., Citizens Natl. Bk. Bldg., St. Louis, Mo.**, wants prices on following:

- Flooring—hardwood, linoleum, marble and terrazzo
- Limestone
- Marble
- Metal Doors
- Roofing—built-up, tile
- Tile—gypsum, hollow, interior
- Vaults
- Ventilators
- Wire Glass
- Brass and Bronze Work.

**Consolidated Engineering Co., 20 E. Franklin St., Baltimore, Md.**, wants prices on following for \$200,000 bank alterations:

- Elevators
- Flooring—linoleum, terrazzo
- Marble
- Tile—hollow
- Ventilators
- Brass and Bronze Work.

**L. R. Langbein, Archt., 214 Hightower Bldg., Oklahoma City, Okla.**, recently moved to this address and wants prices, data and catalogs on all types of building material; also wants prices on following for \$100,000 apartment:

- Brass and Bronze Work
- Cast Stone
- Electric Refrigerators
- Elevators
- Flooring—tile, composition
- Incinerator
- Metal Doors
- Roofing—tile
- Steel Sash and Trim
- Tile—gypsum
- Terra Cotta Trim
- Ventilators
- Wire Glass.

**V. H. Nellenbogen, Archt., 925 Lincoln Road, Miami Beach, Fla.**, wants prices on following for \$25,000 apartment:

- Cast Stone
- Flooring—hardwood, tile
- Roofing (flat)—built-up

**Wimmer Contracting Co., 916 Victoria Bldg., St. Louis, Mo.**, wants prices on following for \$250,000 nurses' home and school:

- Elevators
- Flooring—terrazzo, tile
- Marble
- Metal Doors
- Roofing—built-up
- Steel Sash and Trim
- Tile—gypsum
- Terra Cotta Trim
- Brass and Bronze Work.

**C. Wyant, Burlington Hotel, Washington, D. C.**, wants prices on following for 2 dwellings:

- Cast Stone
- Flooring—hardwood, linoleum, tile
- Plaster Board
- Roofing—asphalt shingle, tin
- Tile—hollow, 4x12x12.

**John F. Choate, Bridgeport, Ala.**, wants prices on following for residence:

- Flooring—hardwood
- Roofing—asphalt shingle.

**L. D. Gordon, Raleigh, Tenn.**, wants prices on following for church remodeling:

- Cast Stone
- Flooring—hardwood, linoleum
- Roofing—asbestos shingle
- Tile—gypsum, hollow.

**Rev. J. M. Patridge, Pastor, Presbyterian Church, York, Ala.**, wants prices on following for church:

- Cast Stone
- Marble
- Rolling Partitions.

**The John W. Cowper Co., Inc., Engrs.-Contrs., State Planters Bank Bldg., Richmond, Va.**, estimating on 178-room addition to Stonewall Jackson Hotel, Staunton, Va., and wants sub-bids by Aug. 30; Kruckenmeyer-Strong, Archts., 111 E. Fourth St., Cincinnati, Ohio.

### Bids Asked

**Alarm Boxes.**—Comms., Dist. of Columbia, Washington, D. C.—Bids Sept. 10 for 60 fire alarm boxes.

**Alcohol, Railroad Ties.**—Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.—Bids Sept. 2 for alcohol and railroad ties, delivery naval powder factory, Indian Head, Md. 8-25

**Billing Machines.**—City Comsn., St. Elmo W. Acosta, Chmn., Jacksonville, Fla.—Bids Sept. 3 for public utility billing and ledger machines for electrical accounting dept.

**Bolts and Washers.**—U. S. Engr. Office, Huntington, W. Va.—Bids Sept. 2 for bolts and washers.

**Bridges.**—Lewisburg, W. Va. See Construction News.—Bridges, Culverts, Viaducts.

**Bridge Material.**—Orlando, Fla. See Construction News—Bridges, Culverts, Viaducts.

**Bridges.**—State of Maryland—Bids for 2 bridges. See Bridges, Culverts, Viaducts.

**Bridges.**—State of South Carolina—Bids for 11 bridges and for raising 2 bridges. See Construction News—Bridges, Culverts, Viaducts.

**Bridges.**—State of Alabama—Bids for 9 bridges. See Construction News—Roads, Streets, Paving.

**Bridges.**—State of West Virginia—Bids for 3 bridges. See Construction News—Bridges, Culverts, Viaducts.

**Bridges.**—See Construction News—Bridges, Culverts, Viaducts.

**Building Material.**—School Bd., D. H. Stringfield, Sec., Franklinton, La.—Bids Sept. 23 for building material for Pine High School.

**Chassis.**—Comms., Dist. of Columbia, Washington, D. C.—Bids Sept. 5 for truck chassis, equipped with flushing unit.

**Culvert Pipe.**—Duval County Comms., Frank Brown, Clk., Jacksonville, Fla.—Bids Sept. 10 for approx. 10,000 lin. ft. corrugated, galvanized, metal culvert pipe, delivery Duval County Prison Farm, Jacksonville.

**Culvert Pipe.**—Comms., Dist. of Columbia, Washington, D. C.—Bids Sept. 4 for 1300 lin. ft. galv. sheet iron culvert pipe.

**Drainage Improvements and Bank Protection Repairs, etc.**—Caddo Levee Dist. Comms., Court House, Shreveport, La.—Bids Sept. 17 for improving drainage, bank protection repairs and cutting weeds and clearing levees. See Construction News—Miscellaneous Construction.

**Elevator.**—Supvg. Archt., Treasury Dept., Washington, D. C.—Bids Sept. 16 for installing complete elevator plant in U. S. post office, court house, etc., Tulsa, Okla.

**Gasoline and Oil.**—Dept. of Highway, Richmond, Va.—Bids Sept. 11 for 1,281,000 gal. gasoline and 78,550 gal. automotive lubrication oil.

**Hardware.**—Commanding Officer, San Antonio Ordnance Dept., San Antonio, Tex.—Bids Sept. 3 for 10 gross screws, 2000 lb. tacks and 100 ft. drill steel.

**Iron Pipe.**—U. S. Engr. Office, Huntington, W. Va.—Bids Sept. 3 for iron pipe.

**Kitchen and Mess Equipment.**—Comms., Dist. of Columbia, Washington, D. C.—Bids Sept. 2 for kitchen and mess hall equipment at D. C. workhouse.

**Levee.**—U. S. Engr. Office, Rock Island, Ill.—Bids Sept. 8 for constructing about 1100 lin. ft. revetment near mouth of Fabius River-Marion County drainage dist., Mo.

**Lumber, Piling (Creosoted), etc.**—George County Bd. of Supvs., Lucedale, Miss.—Bids Sept. 1 for creosoted lumber and piling; also for metal, vit. clay and conc. culvert pipe.

**Lumber.**—Duval County Comms., Frank Brown, Clk., Jacksonville, Fla.—Bids Sept. 10 for approx. 60,000 ft. long leaf, merchantable grade, fine grade yellow pine lumber, dressed on 4 sides, delivery Duval County Pinson Farm, Jacksonville.

**Manhole Ventilator.**—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Sept. 2 for manhole ventilator, delivery Quantico, Va.

**Milling Machines, Etc.**—Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.—Bids Sept. 2 for motor driven universal milling machine; bids Sept. 9 for valve reseating outfits.

**Miscellaneous Machinery, Tools, etc.**—Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.—Bids Sept. 9 for motor driven universal cutter and tool grinder machine, side-cutting pliers, taps, dies and diestocks.

**Miscellaneous.**—Panama Canal, Office of Gen. Pur. Officer, Washington, D. C.—Bids Sept. 6 for following, Sch. 2584:

Generator and air compressor auxiliary sets, steel flats, tiller rope, insulated cable, resistance wire, copper-clad wire, flexible conduit, brass checks, etc.

**Miscellaneous.**—Panama Canal, Office of Gen. Pur. Officer, Washington, D. C.—Bids Sept. 9 for following, Sch. 2583:

Dragline scraper outfit, baggage trucks, gasoline engine, car wheels, cable, wire magnet wire, trolley wire, oil circuit breakers, transformers, etc.

**Miscellaneous.**—Panama Canal, Office of Gen. Pur. Officer, Washington, D. C.—Bids Sept. 8 for following, Sch. 2582:

Metal hospital beds, signs for lamp posts, brackets for same, black pipe fittings, sewer bends, elbows, foot valves, brass globe valves throttle valves, hangers and rollers for box cars, etc.

**Miscellaneous.**—Quartermaster, Army and Navy general hospital, Hot Springs National Park, Ark.—Bids Sept. 7 for steam fitters supplies, pipe, packing, electrical supplies, fuses, sockets, switches, machine shop supplies, bolts, iron bars, rivets, lard oil, snips, fuller balls, bends, etc.

**Motor Boat.**—U. S. Engr. Office, McCall Bldg., Memphis, Tenn.—Bids Sept. 16 for 36-ft. motor boat.

**Pianos.**—Bd. of Awards, Office of City Register, City Hall, Baltimore, Md.—Bids Sept. 3 for pianos for public schools.

**Pipe (Cast Iron).**—City of Houston, Tex.—Bids Sept. 3 for furnishing c. i. pipe and fittings, as per specifications on file at office of business manager, 221 City Hall.

**Pipe (Terra Cotta).**—See Sewer Construction.

**Pipe (Concrete).**—See Sewer Construction.

**Portland Cement.**—State Highway Comsn., Little Rock, Ark.—Bids Sept. 15 for 100,000 bbl. Portland cement during period Sept. 15, 1930 to Sept. 14, 1931.

**Posting Machine.**—City, G. C. Eichorn, City Pur. Agt., Greensboro, N. C.—Bids Sept. 15 for posting machine for Accounting Dept.

**Pumping Unit.**—City of Nashville, Tenn., S. H. McKay, Clk.—Bids Sept. 2 for furnishing and completing installing 24 m. g. d. electric motor driven centrifugal pumping unit for Nashville River pumping station.

**Road.**—Chattanooga, Tenn. — See Roads, Streets, Paving.

**Road.**—Maryland. See Construction News—Roads, Streets, Paving.

**Roads.**—State of Maryland — Bids for 6 roads. See Construction News—Roads, Streets, Paving.

**Roads.**—Lexington, Miss. See Construction News—Roads, Streets, Paving.

**Road.**—Fort McClellan, Ala. See Construction News—Roads, Streets, Paving.

**Road.**—Towson, Md.—See Construction News—Roads, Streets, Paving.

**Road Oil.**—Comms., Dist. of Columbia, Washington, D. C.—Bids Sept. 5 for 30,000 gal. asphaltic road oil.

**Road Materials.**—State Highway Dept., Ben M. Sawyer, Ch. Engr., Columbia, S. C.—Bids Sept. 8 for 500 tons coarse aggregate for surface treatment.

**Roofing Supplies.**—Quartermaster, Fort Bliss, Tex.—Bids Sept. 2 for 120 squares asbestos shingles, 1000 pieces starters, 500 pieces starter halves, 1200 pieces ridge roll, 12,000 storm copper anchors, 1400 copper clips, 200 lb. galv. nails and 100 square asbestos slaters felt.

**Sewer Construction.**—Dist. Comms., Washington, D. C.—Bids Sept. 3 for 6980 ft. of 10-in. to 5 ft. sewer; information at Room 509, Dist. Bldg.

**Sewer Construction.**—City of Birmingham, Ala., A. J. Hawkins, City Engr.—Bids Sept. 2 for sanitary sewers and appurtenances, Imprv. Ordinance No. 1349-D; conc. or terra cotta pipe.

**Street.**—Corinth, Miss. See Construction News—Roads, Streets, Paving.

**Timber (White Oak).**—U. S. Engr. Office, Huntington, W. Va.—Bids Sept. 2 for white oak timber.

**Vessel.**—U. S. Coast Guard Headquarters, Washington, D. C.—Bids Sept. 12 for U. S. Coast Guard cutter No. 51; hull of steel, 250 ft. long, 42-ft. beam, 2000 tons displacement, turbo-electric drive, single screw, 3220 shaft h. p.

**Water Pipe.**—Comms., Dist. of Columbia,

Washington, D. C.—Bids Sept. 12 for 105 net tons 24-in. cast iron water pipe.

**Water Works.**—Bd. of Awards, Baltimore, Md.—Bids Sept. 10 for construction of \$3,500,000 Prettyboy Dam; specifications, plans and proposals forms may be obtained from E. G. Rost, Water Engr.

## INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financial interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers, whether they are advertisers, or subscribers, or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

### Paradon Representative at New Orleans.

The Paradon Manufacturing Company, Arlington, N. J., manufacturers of Paradon chlorinators for city and private water and sewage systems, industrial plants and swimming pools, has appointed Percy L. Luck as representative in New Orleans, with offices at 1811 Masonic Temple Building, succeeding Buckmaster-Luck-Maloochee, Inc., former representatives. Mr. Luck's territory embraces Louisiana and Mississippi.

### Cast Iron Pipe Research Association.

In an announcement published in the MANUFACTURERS RECORD of August 14 relative to appointment of J. R. Dangler by the Standardization and Development Committee of the Cast Iron Pipe Research Association to look after all standardization and development work of the cast iron pipe industry, the address of the association was given as New York, when it should have been 122 South Michigan avenue, Chicago, Ill. Mr. Dangler's office will be at 923 Union Trust Building, Cleveland, Ohio. Thomas F. Wolfe is research engineer of the association.

### Conditional Permit for 110-Mile Rail Line

Childress, Tex.—The Interstate Commerce Commission conditionally approved an application of the Chicago, Burlington & Quincy Railroad Co., A. W. Newton, chief engineer of bridges and roadway, Chicago, Ill., to build 110 miles of new line from Childress to Pampa, Tex., to serve the Panhandle oil field in the vicinity of Pampa. Authority to construct the line was granted the Fort Worth & Denver Northern, Burlington subsidiary, upon the condition that the Burlington and Rock Island build and operate jointly a line between Shamrock and Wellington, and extending south from Wellington to a point where the Rock Island line will take off in a southeasterly direction to a connection with the St. Louis-San Francisco line at Quanah. This plan is intended to do away with the necessity of two lines between Shamrock and Wellington and will be submitted to the Commission for approval. Construction is authorized to begin on or before January 1, 1931,

### Architects Remove Offices.

The offices and drafting rooms of Manley & Young, architects and engineers, of Knoxville, Tenn., have been moved from No. 9 Maplehurst Park to room 206 Medical Arts Building at Main and Locust streets.

### New Froehling-Robertson Laboratory.

A materials and concrete laboratory has been established at 203-205 East 12th street, New York, by Froehling & Robertson, Inc., inspection engineers and chemists, of Richmond, Va. Modern equipment has been installed for tests of all classes of building materials and the public is invited to inspect the facilities.

**Textile Directory.**—The Official American Textile Directory for 1930, with which is combined The American Directory of the Knitting Trade, has been issued by the McGraw-Hill Catalog and Directory Company, Inc., New York. The publication contains a total of 1170 pages and is conveniently classified and arranged.

and completed on or before December 31, 1932. Authority originally granted the Rock Island to build 108 miles of new line from Shamrock southerly to Wellington and southeasterly to a connection with the St. Louis-San Francisco at a point 5 miles north of Quanah, and from Quanah southeasterly to a connection with the proposed Vernon-Seymour line of the Frisco, together with about 100 miles of trackage rights over the Frisco system, was modified by the Commission to include the same condition as that imposed on the Burlington construction.

### Baltimore-Houston Steamship Service

Plans are being made by the Newtex Steamship Corp., New York, for a commercial steamship service between Baltimore and Houston, Tex., the first sailing to be on September 18 from Baltimore. Two steamers of 3500 tons each will serve the line and a schedule of bi-weekly sailings will be maintained. Robert C. Herd & Co. are the Baltimore agents.

# Leadership

Leadership is the guiding power of business at work. It represents the confidence and faith of the many in the few. It is responsible for the profits of business—for the livelihood of workers. It is the trusteeship of success.

Especially do conditions today demand real leadership—knowledge, vision, fighting determination and courage. Dependable information must be more constructively used. Inefficiencies must be eliminated, more competent organization built up, new ideas and better methods adopted—to prevent loss and insure profits and good-will.

Leadership is blind without knowledge. Knowledge of one's business comes from the analysis of facts incident to sound planning, and from the frequent comparison of operating results with a well-made budget. Such analyses and comparisons point out weakness and waste, suggest better methods, indicate new sources of profit. They are chart and compass to renewed progress and greater success.

## ERNST & ERNST

ACCOUNTANTS AND AUDITORS  
SYSTEM SERVICE

AKRON  
ATLANTA  
BALTIMORE  
BIRMINGHAM  
BOSTON  
BUFFALO  
CANTON  
CHICAGO  
CINCINNATI  
CLEVELAND  
COLUMBUS

DALLAS  
DAVENPORT  
DAYTON  
DENVER  
DETROIT  
ERIE  
FORT WAYNE  
FORT WORTH  
GRAND RAPIDS  
HARTFORD  
HUNTINGTON  
W. VA.

HOUSTON  
INDIANAPOLIS  
JACKSON, MISS.  
KALAMAZOO  
KANSAS CITY  
LOS ANGELES  
LOUISVILLE  
MEMPHIS  
MIAMI  
MILWAUKEE  
MINNEAPOLIS  
NEW ORLEANS

NEW YORK  
OMAHA  
PHILADELPHIA  
PITTSBURGH  
PORTLAND, ME.  
PROVIDENCE  
READING  
RICHMOND  
ROCHESTER  
ST. LOUIS  
ST. PAUL  
SAN ANTONIO

SAN FRANCISCO  
SEATTLE  
TAMPA  
TOLEDO  
TULSA  
WACO  
WASHINGTON  
WHEELING  
WILMINGTON, DEL.  
WINSTON-SALEM  
YOUNGSTOWN

### South Leads in Reducing Industrial Accidents

Presentation to Richmond, Va., of the national trophy for greatest improvement in reducing industrial accidents in the first half of this year under 1929 will be a feature of the National Safety Congress to be held at Pittsburgh, Pa., September 29-October 3. Chattanooga in second place and Kansas City in third gave the South all the places of highest honor in the list. This is said by Colonel William M. Myers, managing director of the Richmond Safety Council, to be the first time a Southern city ever has won first place. In the reduction of accidents among commercial fleets in the same period, Richmond stood second to Decatur, Ill.

### \$500,000 Hospital Contract

Independence, Mo.—General contract has been awarded to L. W. Weeks, local contractor, to erect a \$500,000 building here for the Independence Sanitarium, Miss G. E. Copeland, business manager. The main building will be 7 stories and basement, 163 by 43 feet, with four wings, 43 by 11 feet. Excavation for the building has been completed. Henry C. Smith, Independence, is the architect.

### Distribution of Manufacturers Sales

The manner in which manufacturers sell their goods and the extent to which they are engaged in wholesale and retail merchandising will be shown for the first time by the current Census of Distribution. In order to obtain this information a "Distribution of Sales" inquiry was inserted in the Census of Manufactures questionnaire, sent out by the Census Bureau.

When the census is completed, comprehensive information will be available showing how manufacturers in each of the 340 census classifications of industries are selling their products. The extent to which manufacturers are performing the functions of wholesalers and retailers through direct selling to the consumer, or through owned or controlled wholesale or retail establishments will be shown; also the extent to which manufacturers of different size in different localities and in different industries are utilizing manufacturers' agents, selling agents, brokers and commission houses. This information will be available geographically as well as industrially and by size of establishment.

Results of this sales distribution inquiry thus far have been illuminating, reports the Census Bureau. Final com-

pilations are expected to reveal beneficial information on the trend in the distribution field as well furnishing comprehensive data on wholesale and retail merchandising activities of manufacturers.

### Mississippi in Lead With New Industries Established

(From Greenwood Commonwealth.)

Establishment of 125 new industries in 82 communities on the Illinois Central System during the year just past is reported by Mark Fenton, general industrial agent of the railroad, in connection with a summary of the first year's work of that department appearing in the August issue of the Illinois Central Magazine.

Mississippi led, with 39 new industries in 30 communities, while Illinois exclusive of Chicago was second, with 21 new industries in 16 communities. In addition to keeping in touch with the location of these industries, Mr. Fenton and his staff co-operated with civic organizations in advisory and informative capacities. A general industrial survey of the railroad's entire territory was sponsored. Sixty-nine prospects for the location of industries are at present being followed up.

### 195 New Industries Locate Along Frisco Lines in Seven Months

Despite recession in business activities throughout the country, the St. Louis-San Francisco Railway Company, St. Louis, Mo., reports the location on its rails of 195 new industries during the first seven months of 1930. Total value of these industries is estimated at \$6,555,000, an increase of \$2,310,000 over those established during the first seven months of 1929. During July 33 new industries were located on the Frisco lines, and the estimated annual carlot production from these 33 industries is placed at approximately 3600 cars.

### Rayon Company Erecting Dwellings

Covington, Va.—In addition to a group of 190 dwellings now available for its employees, the Industrial Rayon Corp. will expand its housing facilities by the construction of approximately 110 dwellings between the rayon mill and Covington. The company recently completed and put in service a new dormitory containing 33 sleeping compartments.

## Rapid Growth of Cotton Manufacturing in India, China and Japan

"It may take some years yet before the Indian mills will be able to supply their markets entirely with their own manufactured cotton goods, but that time is sure to come, perhaps in the distant future," stated Arno S. Pearse in a report on the cotton industry in India published by the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester, England. Mr. Pearse declared that the increase in spindles in Japan, India and China since 1914 had totaled over 10,000,000 and that this increase really represented an equivalent of about 22,000,000 in Lancashire.

"The development of the cotton mill industry of Asia since the war has gone faster than is generally being realized, and it is to this rapid expansion that we must attribute the major portion of the causes of cotton trade depression felt in all parts of the world, but particularly in Lancashire," he said. Mr. Pearse stated that there are mills in India which in output per unit and cost per pound of yarn do not stand behind the best in any part of the world. Gen-

erally speaking, the technical equipment of the Indian mills is so far advanced that even in finer goods the competition of Lancashire is not regarded seriously. The enormous strides that have taken place in the Indian mill industry will steadily go on, it was said.

Mr. Pearse stated that welfare work among Indian cotton operatives is more needed than in any other country.

Regarding future trade "Europe must realize that all textile machinery going to India or to any other country is being bought for the one purpose of producing the goods which we have been in the habit of supplying."

Three big Japanese importing houses have established in the Bombay bazaar a syndicate of 15 dealers who specialize entirely in Japanese goods. There is no syndicate for the sale of European goods but there are hundreds of wholesale dealers each trying to compete and each depressing the prices. Owing to severe competition, business on a large scale will be possible only by cutting out the useless intermediaries, Mr. Pearse's report concluded.



**WHERE  
STRENGTH  
IS ESSENTIAL**

**W**HEN tested in piers, Brixment mortar approaches straight 3-to-1 portland cement mortar in strength.

And since Brixment is more plastic, is ground finer and hardens more slowly, it insures a better bond and more thorough bedding of the brick.

Ideal for foundation, load-bearing or parapet walls and even for tall, free-standing stacks. Louisville Cement Company, Incorporated, Louisville, Kentucky.

CEMENT MANUFACTURERS SINCE 1830

**BRIXMENT**

For MASONRY and STUCCO



### Soviets Worrying Britishers

(From Better America Federation of California.)

A growing resentment is apparent in England against operations of the Soviet dictatorship since Great Britain closed her eyes to Communist sedition-sowing and permitted the Stalin gang to resume relations of diplomacy (and duplicity).

One of the most outspoken hostilities in England against the Communist Government is concerning the financial embarrassments entailed by commerce with the Reds. This is most illuminating, in view of the constant money argument put up in America by the proponents of Soviet recognition. We quote from a British magazine of June 12, 1930:

"By admitting a nest of these conspirators to be established in the heart of the Empire, in accordance with their election promises, the Socialist Government has provided the facilities which Moscow desired, and as Soviet imports into this country have to be paid for in cash while exports to Bolshevia depend on heavy credits, large funds are made available in the most convenient central position to finance the gigantic machine for world revolution."

In the House of Commons, a fatuous friend of Bolshevia, a Mr. M. MacDonald, spilled the beans when, in arguing in behalf of tolerance for the Soviets, he said:

"Our proper policy was ever to be prepared to close one eye if propaganda took place, because that was the price we had to pay in order to bring Russia back into the comity of nations."

A jolly theory, this. We must be gentle, brethren, when our neighbors turn their crop-destroying hens into our yard, because, forsooth, maybe if we are kind to said hens they may lay an egg or two for us.

But the magazine above quoted goes on with its scathing and unanswerable indictment, as follows:

"The story of our dealings with the Soviet shows total disregard of laws, divine and human, which have hitherto governed international relations. We have given comfort to the enemies of God and man, and ignored, or condoned, the most heinous crimes ever committed. Behind all this there is a mystery still unraveled."

### Bids on \$3,500,000 Dam

Bids will be opened Sept. 10 by the Board of Awards, Baltimore, for the construction of the \$3,500,000 Prettyboy dam on the upper Gunpowder River for augmenting Baltimore's water supply. The dam will create a reservoir of approximately 8000 acres along the upper Gunpowder and Prettyboy Creek and will impound more than 20,000,000,000 gallons of water. Plans, specifications and proposal forms may be obtained from the office of E. G. Rost, water engineer, room 301, Municipal Office

Building. Charles F. Goob is the chief engineer of the city. Contracts for clearing the reservoir area were recently awarded to Joseph A. Lavezza & Son, Baltimore, and R. M. Lee, Monkton, Md.

### Plans to Speed Flood Control Work

Orange, Va.—Plans evolved at a recent conference at the President's mountain lodge near here, call for speeding up work under way on inland waterways and especially on the lower Mississippi River flood control projects, with a view to improving economic conditions which have been seriously affected by the drought and unemployment. Parties to the conference included President Hoover, Secretary of War Hurley, Maj.-Gen. Lytle Brown, Chief of Army Engineers, and Col. George R. Spalding, of the United States Army. According to a program agreed upon, approximately \$35,000,000 available, under the Jadwin plan, during the present fiscal year which ends June 30, 1931, would be expended by the spring of 1931. There would also be available a balance from an allotment of \$24,200,000 made June 6 for flood control, in addition to a balance remaining from \$35,000,000 available for the previous fiscal year.

### \$3,000,000 ART MUSEUM UNDER WAY

Kansas City Erecting Modern Structure

Kansas City, Mo.—The Nelson Art Gallery and Atkins Museum of Fine Arts, under construction at 44th street and Rockhill road, occupies a ground space 1200 by 592 feet, with a 700-foot approach to the south entrance, using a 50-foot drop to the street. The structure will be of modified Greek architecture, three stories, ground floor and mezzanine, 172 by 372 feet, and will cost with furnishings, approximately \$3,000,000. A large tapestry hall will be located in the center of the building, between the north and south main entrances, with a court on the west side extending from the first floor to the roof. The ground floor will accommodate an auditorium to seat 700 which will be used for art lectures, art institute dramas, etc., and on the second floor on either side of the tapestry room, there will be exhibit halls for paintings and sculpture work. Administrative offices will be housed on the ground floor, while the open court will have an Italian garden on the first floor level. A studio will be installed on the fourth floor. Wight & Wight are the architects and the Long Construction Co., general contractor, both of Kansas City.

## 5,014,562 Tons of Cottonseed Crushed in Year Ending July 31

Between August 1, 1929, and July 31, 1930, there were 5,019,677 tons of cottonseed received by the cottonseed oil mills of the South; of these receipts 5,014,562 tons were crushed. On July 31 the mills reported on hand 44,606 tons of cottonseed. This is a decrease of 65,000 tons in seed received and 46,500 tons in seed crushed, but shows

3000 tons more on hand. Texas was the leading state in cottonseed oil mill activity. While the mills of that state received 1,279,751 tons, there were crushed 1,283,695 tons, accounted for by the fact that on July 31, 1929, Texas reported 20,115 tons on hand and at the end of July 31, 1930, there were 15,998 tons.

### QUANTITY OF COTTONSEED PRODUCTS MANUFACTURED, SHIPPED OUT AND ON HAND.

	Season	On hand August 1	Produced August 1 to July 31	Shipped out August 1 to July 31	On hand July 31
Crude oil . . . . . pounds	1929-30	*19,181,886	1,572,059,267	1,580,427,228	*8,110,407
	1928-29	20,350,682	1,604,131,038	1,607,124,234	19,181,886
Refined oil . . . . . pounds	1929-30	†338,619,933	†1,410,641,411	.....	†299,933,070
	1928-29	335,993,223	1,458,537,594	.....	338,619,933
Cake and meal . . . . . tons	1929-30	76,667	2,231,682	2,254,041	54,308
	1928-29	32,648	2,381,576	2,237,557	76,667
Hulls . . . . . tons	1929-30	63,917	1,383,461	1,420,060	27,318
	1928-29	29,291	1,368,279	1,333,653	63,917
Linters . . . . . running bales	1929-30	70,854	1,037,212	971,603	136,463
	1928-29	43,994	1,085,766	1,058,906	70,854
Hull fiber . . . . . 500-lb. bales	1929-30	1,848	75,784	74,973	2,859
Grabbots, motes, etc.,	1928-29	2,775	79,363	80,290	1,848
500-lb. bales	1929-30	8,453	47,903	43,389	12,967
	1928-29	1,903	54,276	47,726	8,453

\*Includes 4,021,958 and 1,946,590 pounds held by refining and manufacturing establishments and 4,186,570 and 3,558,420 pounds in transit to refiners and consumers August 1, 1929, and July 31, 1930, respectively.

†Includes 5,506,926 and 6,068,528 pounds held by refiners, brokers, agents and warehousemen at places other than refineries and manufacturing establishments, and 5,589,277 pounds in transit to manufacturers of lard substitute, oleomargarine, soap, etc., August 1, 1929, and July 31, 1930, respectively.

‡Produced from 1,549,569 pounds of crude oil.

# The SECOND GENERATION



Down the length of the great room goes a steady hum of sound, under-toned with the rhythm of a hundred busy typewriters and the buzz and click of conveyors. It is the Educational Service Division of the International Correspondence Schools, at Scranton, and the morning mail is in.

Watch one letter among the orderly thousands—a letter bearing the postmark of an up-state town in New York. It is opened, and by the deft manipulations of the sorters it moves to a desk far down the room where a clerk takes it from the top of the pile and reads it. An enrolment application for the Course in Business Management, signed by Robinson V. Carter, Jr.

When the clerk has typed the name and information on a yellow card, she steps over to the long line of cabinets

where close to four million students' names are filed. And as she is about to insert it in its alphabetical order her eye falls upon another card, old and discolored and worn with many handlings. "Robinson V. Carter" it reads, "Course in Foundry Practice," and the date it bears is 1900.

There is a story of human progress behind those two cards.

Back in the days when the country still echoed to the martial strains of "Hot Time in the Old Town," and Admiral Dewey's picture, laurel-wreathed, hung on a million walls, a young man came back from the war to his job in the foundry. He wanted to get ahead, but lacked technical knowledge. There was a school in Scranton, he heard, that taught all kinds of subjects by mail, and he was interested enough to write and find out.

That home-study course with the International Correspondence Schools gave him his start. He went up, steadily, to Foreman, Superintendent, General Manager. Today he owns the plant, and his son—a college graduate—is studying with the I. C. S. that he may help build the business.

In our files there are many stories of fathers who have won success through I. C. S. study, and are now urging their sons to take the same sound training.

So it is that this largest of all educational institutions is now serving its second generation of usefulness to America and the world.

There is a booklet, "The Business of Building Men," which outlines the vast service the International Correspondence Schools are performing for Business and Industry. We shall be glad to send you a copy on request.

## INTERNATIONAL CORRESPONDENCE SCHOOLS

FOUNDED 1891  
SCRANTON, PENNSYLVANIA

MEMBER, NATIONAL  
HOME STUDY COUNCIL

# FINANCIAL NEWS

## Bond Issues Proposed

Ala., Birmingham—City Comsn. receives bids Sept. 16 on \$260,000 4½% improvement bonds.

Ala., Irondale—Street—Town, C. B. McDaniel, Mayor, reoffering \$11,000 6%, series A bonds, bids to be opened Sept. 2. 7-3

Ark., Rector—Clay County Special School Dist. No. 46, W. C. Frets, Secy., Bd. of Education, opens bids Sept. 8 for \$30,000 refunding bonds.

Fla., Madison—State Road Dept., Robert W. Bentley, Tallahassee, opens bids Sept. 8 for \$87,000, 5%, \$1000 denom. Madison County road bonds.

Ga., Brunswick—City voted \$40,000 paving bonds.

La., Jonesboro—School—Jackson Parish School Bd. receives bids Sept. 4 for \$40,000, not to exceed 6% bonds. 8-14

La., Sugartown—School—Beauregard Parish School Bd., DeRidder, called election for Sept. 16 to vote on \$20,000 bonds.

Miss., Tchula—Holmes County Clk., Lexington, opens bids Sept. 1 for \$30,000 Tchula Consolidated School Dist. bonds. 8-14

Miss., Yazoo City—School—Yazoo County votes Sept. 2 on \$25,000, 6%, short term notes.

Mo., Kansas City—City votes in November on bonds for 10-yr. plan of civic improvement.

Mo., Mountain Grove—Water—City votes Sept. 9 on \$20,000 bonds.

Mo., Richland—Water—City votes Sept. 2 on \$50,000 bonds.

N. C., Charlotte—Water—City Council, Edgar Read, Clk., will issue \$100,000 bonds.

N. C., Winston-Salem—Forsyth County Commrs., J. M. Lentz, Clk., receives bids Sept. 2 for \$30,000 bond anticipation loan notes. 7-24

Okla., Stilwell—Court House and Jail—Adair County Commrs., C. W. Waters, Chmn., receives bids Sept. 1 for \$60,000, \$1000 denom. bonds. 8-21

S. C., Travellers Rest—School—Greenville County Bd. of Education, James F. Whatley, Supt., voted \$30,000 bonds. 8-14

S. C., Wigginsboro—Road—Fairfield County Supvrs., M. C. Boulware, Supvr., receives bids Sept. 8 for \$115,000 bonds.

Tenn., Livingston—City, Bd. of Mayor and Aldermen, opens bids Aug. 30 for \$60,000, not to exceed 6% \$1000 denom. water bonds. 5-8

Tex., Brownsville—Water—City voted \$170,000 bonds. 7-24

Tex., Galveston—Hospital—Galveston County, I. Predecki, County Auditor, plans selling \$55,000 bonds. 5-8

Tex., Marlin—Road—Falls County voted \$120,000 Road Dist. No. 3 bonds.

Tex., Pecos—Reeves County Commrs., Court, H. N. McKellar, County Judge, rejected bids for \$75,000, 5% Road Dist. No. 1 bonds. 7-31

Tex., San Benito—Cameron County Water Improvement Dist. No. 11 votes Sept. 11 on \$500,000 irrigation bonds.

W. Va., Pennsboro—Water—Town voted \$40,000 bonds.

## Bond Issues Sold

Ga., Blue Ridge—Blue Ridge School Dist., Fannin County, sold \$30,000, 5%, \$1000 denom. bonds to J. H. Hilsman & Co., Inc., Atlanta, at par.

La., Rayville—Richland Parish Police Jury, J. C. Salmon, Secy., sold \$100,000, 5½%, \$1000 denom. Sub-Road Dist. No. 6 bonds to Continental Bank & Trust Co., New Orleans, at par, accrued interest and \$10 premium. 7-24

La., Rayville—School—Richland Parish School Bd., E. E. Keebler, Supt., sold \$225,000, 5%, \$1000 bonds at \$2650 premium to Caldwell & Co., New Orleans. 7-31

La., Rayville—Richland Parish Police Jury, J. C. Salmon, Secy., sold \$200,000, 5½%, \$1000 denom. Sub-Road Dist. No. 5 bonds at par and accrued interest to Caldwell & Co., New Orleans.

Md., Rockville—Road—Montgomery County Commrs., Berry E. Clark, Clk., sold \$36,000, 5% bonds to Montgomery County National Bank, Rockville, at par and accrued interest. 8-7

N. C., Cherryville—Town, T. J. Mosteller,

Clk., sold \$22,000, 6%, \$1000 denom. refunding bonds, at \$22,242 and accrued interest.

N. C., Greensboro—Guilford County Commrs., R. H. Wharton, Clk., sold \$400,000 tax anticipation notes to M. M. Freeman Co., New York, at interest rate of 4.25 and premium of \$11.

N. C., Wilmington—Refunding—City, B. H. Dewey, Clk., sold \$125,000, 4½%, \$1000 denom. bonds at \$1628 premium to Braun, Bosworth & Co., Toledo, Ohio. 8-14

Tex., Brackettville—Brackettville Independent School Dist., W. W. Price, Secy., sold \$40,000, 5% school bonds to State Department of Education, Austin, at par. 5-8

Tex., Fredericksburg—Fredericksburg Independent School Dist., Gillespie County, sold \$50,000, 5% school bonds to Brown-Crummer Investment Co., Wichita, Kans., at par.

Tex., Greenville—City sold \$25,000 bonds, at par plus \$200 premium, to Dallas Union Trust Co., Dallas, \$15,000 5% school, \$5000 5½% street improvement, \$500 5½% street maintenance. 5-22

## New Financial Corporations

Md., Baltimore—United States Shares Corp., Baltimore Trust Bldg., chartered; Dorothy M. Gaston, Milton E. Hartley.

Md., Baltimore—T. B. Z. Investment Co., Inc., 213 St. Paul Pl., chartered; Rodney J. Brooks, Benjamin S. Tongue.

Miss., Houston—Bank of Houston, capital \$12,500, chartered; Ashton Toomer, V. B. Philpott.

N. C., Albemarle—Industrial Bank of Albemarle, capital \$100,000, chartered; John R. Jones, Jr., Eli Kenderick.

Tex., Plainview—First National Bank, capital \$100,000, chartered; E. M. Carter, Pres., J. G. Daugherty, Cashier.

First National Bank, L. Y. Sherman, Chmn. of Bd., Daytona Beach, Fla., changing name to First Atlantic National Bank of Daytona Beach.

People's State Bank, Charleston, S. C., acquired Bank of Edgefield and Farmers Bank, both Edgefield, S. C.

## Virginia-Carolina Chemical Statement.

The consolidated financial statement and profit and loss account of the Virginia-Carolina Chemical Corporation, Richmond, Va., for the fiscal year ended June 30, 1930, shows net profits of \$1,407,002, as compared with \$1,515,501 for the year ended June 30, 1929. Gross earnings of the company after deducting manufacturing costs and expenses, including ordinary repairs and maintenance of properties and depletion of mines, but before providing for depreciation, amounted to \$3,925,182. Net earnings of the company before providing for depreciation and Federal income taxes amounted to \$2,338,203.

## Trade Literature

**Material Handling Machines.**—A 32-page catalog listing the entire line of Barber-Greene material handling machinery, has been issued by the Barber-Greene Company, Aurora, Ill. The text covers conveyors, four types of Barber-Greene bucket loaders, four vertical boom ditchers, six coal handling machines and the Barber-Greene snow loader.

**Electric Automatic Control.**—The Reeves Pulley Company, Columbus, Ind., has issued a booklet illustrating and describing electric automatic control and electric remote control. Speeds may be infinitely regulated over predetermined range, automatically, according to the company, and any number of machines may be installed in tandem or in range and the speeds all automatically synchronized.

**Daylighting and Ventilating.**—Two pieces of literature recently issued by the American Skylight Company, Chicago and New York, include a handbook on American skylighting and a booklet devoted to Steelead skylight. The former outlines in detail a mechanical method of scientific daylighting and ventilating by means of modern American skylights, while the latter describes the construction of Steelead skylights, emphasizing their inestructible qualities and illustrating their use for construction purposes. V. H. Kriegshaber & Son, Inc., Atlanta, Ga., are distributors of these products.

**Emulsified Asphalts.**—Bulletin 330, devoted to methods of waterproofing, dampproofing and applying a general protective coating by the use of Headley emulsified asphalt, has been issued by the Headley Emulsified Products Company, Philadelphia. The product is widely used on various structures, including abutments, docks, bridge decks, coal breakers, dams, foundations, swimming pools, industrial plants, etc., offering protection against corrosion, gases and fumes, brine or salt water, soil conditions and other destructive agencies. It is used also for plaster bond and in construction and maintenance of traffic-bearing surfaces. The company has also issued bulletin 430, devoted to Headley asphalt-base aluminum, and bulletin 230, listing various applications of Headley emulsified asphalts.

**Appraisers and Assessors Manual.**—In a volume of 500 pages, published by the McGraw-Hill Book Co., Inc., New York, information is presented on various phases of the appraiser's and assessor's work. The authors are W. L. Prouty and Frank H. Prouty, of the Prouty Bros. Engineering Co., Denver, and Clem W. Collins, of Collins, Whiting & Co., and manager of revenue and assessor of Denver. In covering in detail appraising and assessing work, the book outlines scientific principles for valuation of property, especially for taxation purposes; systems and methods as used throughout the country; useful and authoritative data, rules, tables, charts and illustrations. The price is \$5.00.

**Power Transmission Equipment.**—Publications recently issued by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., devoted to mechanical power transmission equipment for general industrial use, include circular 1887 illustrating and describing the Westinghouse-Nuttall flexible couplings and circular 1891 entitled Westinghouse-Nuttall Speed Reducers Types SVR, DVR and DVra, presenting information on the application, construction, rating and dimensions of these vertical type units for single and double reductions and right angle drives.

**Research in Industry.**—Because of greater emphasis being given to research by practically all industries, the Division of Engineering and Industrial Research of the National Research Council, New York, has published a reading list of selected articles from the technical press to stimulate a wider appreciation of the benefits of research by industrialists. The list was compiled by Clarence J. West, Washington, D. C., director, Research Information Service for the Division of Engineering and Industrial Research, and is priced at 50 cents.

**HERE YOU FIND****COOPERATION and CONSERVATISM**

which is proving good for both  
borrowers and depositors, and  
may be called the keystone of  
our success.

**BALTIMORE COMMERCIAL BANK**

GWYNN CROWTHER, President

26 South Street, Baltimore, Md.

Capital and Surplus \$1,350,000.00

Member Federal Reserve System

**WE** extend the facilities of our organization to those desiring information or reports on companies with which we are identified.

**Electric Bond and Share Company**

Two Rector Street

New York

Corporate Financing Arranged  
Mergers and Reorganizations Effected  
Capital furnished for both new and old enterprises

**WILLIAM AKERS**

Long Distance and Local Phone Walnut 3186

1314-15 Atlanta Trust Co. Bldg.

ATLANTA, GEORGIA

**We Buy Bonds**

City, County, School and Road from  
Municipalities and Contractors

WRITE

**THE PROVIDENT SAVINGS BANK & TRUST CO.**  
CINCINNATI OHIO

WE PURCHASE ISSUES OF SPECIAL ASSESSMENT BONDS  
AND ADVANCE FUNDS TO RESPONSIBLE CONTRACTORS  
ACCOUNT CONSTRUCTION COSTS SUCH ISSUES

CORRESPONDENCE WITH US INVITED

**S. G. GARRAWAY & COMPANY**

208 SO. LA SALLE ST. - CHICAGO, ILLINOIS

W. O. GAY H. D. MONTGOMERY G. C. DEMOREST  
MUNICIPAL NOTES

COMMERCIAL PAPER

COLLATERAL LOANS

**W. O. GAY & CO.**

Est. 1894

27 William Street, New York

53 State Street, Boston

1418 Walnut Street, Philadelphia

**WELDED  
TANKS PIPE**

STORAGE

WATER

PRESSURE

DRAINAGE

FUEL

DREDGE

PONTOONS, BARGES, PLATE WORK

**WELDED PRODUCTS CO. OF LA., Inc.**

Division of

EQUITABLE EQUIPMENT CO., Inc.

410 Camp Street

New Orleans

**IF YOU WANT TO GET ~**  
*Southern Business*  
*Advertise in the*  
**MANUFACTURERS RECORD**

**YOUNG & SELDEN COMPANY**

MANUFACTURING

**Bank and Commercial Stationers**

**BALTIMORE, MD.**

**"The Early 1880's in Baltimore"**

Southern men and women who lived in, or visited Baltimore in the period when this Company was established—which was the year of 1884—will be interested, we believe, in our anniversary book "The Early Eighties: Sidelights on the Baltimore of forty years ago." A copy will be sent upon request.

**MERCANTILE TRUST COMPANY  
OF BALTIMORE**

Resources \$24,000,000 A. H. S. POST, Pres. F. G. BOYCE, Jr., Vice-Pres.

**THE OSCAR T. SMITH & SON CO.**

Manufacturing

**BANK AND COMMERCIAL STATIONERS**

407-9-11 E. Saratoga Street

BALTIMORE, MD.

CHARACTER

QUALITY

— SERVICE —



# PROPOSALS

BOND ISSUES

BUILDINGS

PAVING

GOOD ROADS



Bids close September 15, 1930.

U. S. ENGINEER OFFICE, Montgomery, Ala. Sealed bids, in triplicate, will be received until 2 P. M. September 15, 1930, and then publicly opened, for the construction of one eighty-foot creosoted wood hull. Information upon application.

Bids close September 17, 1930.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., August 20, 1930.—SEALED BIDS will be opened in this office at 3 p. m., September 17, 1930, for the remodeling and enlarging of the U. S. post office at Washington, Pa. Drawings and specifications may be obtained from the custodian of the building at Washington, Pa., or at this office, in the discretion of the supervising architect, JAS. A. WETMORE, Acting Supervising Architect.

Bids close September 12, 1930.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., August 22, 1930.—SEALED BIDS will be opened in this office at 3 p. m., September 12, 1930, for changes in the fourth floor of the U. S. treasury building, Washington, D. C. Drawings and specifications may be obtained at this office, in the discretion of the supervising architect, JAS. A. WETMORE, Acting Supervising Architect.

Bids close September 15, 1930.

## Bridges

### KENTUCKY STATE HIGHWAY DEPARTMENT DIVISION OF CONSTRUCTION

Frankfort, Ky., August 6, 1930.

Sealed bids will be received by the State Highway Commission at its office, Frankfort, Kentucky, until 2 P. M. on the 15TH day of SEPTEMBER, 1930, for the construction of OHIO RIVER BRIDGE AT MAYSVILLE.

One main suspension span 1060 ft., two side spans 465 ft. each; Kentucky approach; one 78 ft. steel girder span and four 58 ft. steel girder spans; Ohio approach; one 78 ft. steel girder span, five 58 ft. steel girder spans and one 61 ft. steel girder span; concrete anchors, piers, abutments and retaining walls.

Bids will be received on the complete work or separately as follows:

- (1) Concrete anchors, piers, abutments and retaining walls.
- (2) Steel superstructure.

#### KENTUCKY RIVER BRIDGE AT BOONESBORO

Eight 50 ft. concrete girder spans, two 140 ft. steel truss spans, one 250 ft. steel truss span and reinforced concrete piers and abutments.

Bids will be received on the complete work or separately as follows:

- (1) Concrete superstructure and substructure.
- (2) Steel superstructure.

#### BRIDGE OVER TENNESSEE RIVER NEAR PADUCAH

Three 400 ft. steel truss spans, ten 100 ft. plate girder spans, one 60 ft. plate girder span, twelve 46 ft. I-beam spans, four 45 ft. I-beam spans and reinforced concrete piers and abutments.

Bids will be received on the complete work or separately as follows:

- (1) Concrete substructure.
- (2) Steel superstructure.

#### CUMBERLAND RIVER BRIDGE AT SMITHLAND

One 500 ft. steel truss span, twelve 100 ft. steel plate girder spans, one 46 ft. I-beam span, one 34 ft. I-beam and reinforced concrete piers and abutments.

Bids will be received on the complete work or separately as follows:

- (1) Concrete substructure.
- (2) Steel superstructure.

Further information, plans, bidding proposals, etc., will be furnished upon application to the Frankfort Office.

Blueprints of this work will be on file for inspection only at the District Engineer's headquarters.

The right is reserved to reject any and all bids.

THE STATE HIGHWAY COMMISSION.  
By BEN JOHNSON,  
Chairman.

Bids close September 18, 1930.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., August 21, 1930.—SEALED BIDS will be opened in this office at 3 p. m., September 18, 1930, for the construction of the U. S. post office at Framingham, Mass. Drawings and specifications, not exceeding six sets, may be obtained at this office, in the discretion of the supervising architect, by any satisfactory general contractor, and provided a deposit of \$15.00 is made for each set to assure its prompt return. Checks offered as deposits must be made payable to the order of the Treasurer of the United States, JAS. A. WETMORE, Acting Supervising Architect.

Bids close September 23, 1930.

## Highway Bridge

Pensacola, Fla.

Sealed bids will be received by the Board of County Commissioners of Escambia County, Florida, at the office of the Clerk of the Circuit Court of said county until ten o'clock A. M., Tuesday, 23rd day of September, 1930, and at that time publicly opened, for the construction of a highway bridge across Perdido Bay from a point at or near Cummings Point in Florida to a point at or near Lillian, in Alabama, together with an abutment and an earth fill approach at the Florida end of said bridge.

The bridge is to be approximately 3800 feet in length. The width of roadway will be twenty (20) feet. Alternate bids will be received on designs calling for: A treated timber trestle; an all-concrete trestle, using concrete piling and a T-beam deck; and a trestle using treated timber substructure and a concrete slab floor on treated timber stringers; all designs to include one fixed steel span providing a 40-ft. clear opening at the channel.

Plans and specifications are on file and may be obtained at the office of the Clerk of Circuit Court, Pensacola, Florida. A deposit of ten dollars is required for each set of plans and specifications furnished. This deposit will be refunded upon the return of the plans and specifications by a bona fide bidder.

Any additional information may be secured from the County Engineer, Pensacola, Florida.

Payment for the construction of said bridge and all work and materials in connection therewith will be made by delivering to the contractor so many of certain Escambia County bonds at par and accrued interest as may be necessary to pay the contract price, viz: bonds of the authorized issue of \$200,000.00, dated January 15, 1930, bearing interest at 6% per annum, interest payable semi-annually on the 15th day of July and January, the principal of the bonds so to be delivered becomes due and payable as follows: \$10,000.00 on January 15th, 1933, and \$10,000.00 on the corresponding day in each year thereafter until and including the year 1950, each bond being of the denomination of \$1000.00 and having attached thereto coupons for the semi-annual payments of interest accruing thereon, all payable at the office of the Guaranty Trust Company of the City of New York, in the City of New York, State of New York.

Each bidder must deposit with his bid a certified check on a Pensacola, Florida, bank, payable or properly endorsed unconditionally to W. C. Barrineau as Chairman of the Board of County Commissioners, in an amount equal to 5% of the amount of his bid as a guaranty of the performance of the terms of his bid, and if he shall fail to promptly perform the terms of his bid, if accepted, such check and its proceeds shall be and remain the absolute property of the County of Escambia as liquidated damages on account of the non-performance of the terms of such bid.

The said County Commissioners reserve the right to reject any and all bids.

By order of said Board of County Commissioners.

W. C. BARRINEAU,  
Chairman.

(Seal) LANGLEY BELL,  
Clerk.

Bids close September 10, 1930.

## Bridges

### KENTUCKY STATE HIGHWAY DEPARTMENT DIVISION OF CONSTRUCTION

Frankfort, Ky., August 6, 1930.

Sealed bids will be received by the State Highway Commission at its office, Frankfort, Kentucky, until 2 P. M. on the 10TH day of SEPTEMBER, 1930, for the construction of OHIO RIVER BRIDGE AT ASHLAND.

Center span, 739 ft. steel truss span, two side spans, 431 ft. steel truss spans, two 156 ft. steel truss spans, one 72 ft. plate girder, one 46 ft. 5 in. I-beam and eight 30 ft. I-beam spans, steel bents and towers, reinforced concrete piers and abutments and fill approaches.

Bids will be received on the complete work or separately as follows:

- (1) Concrete substructure with fill approaches.
- (2) Steel superstructures, bents and towers.

#### GREEN RIVER BRIDGE AT SPOTTSVILLE

One 360 ft., one 161 ft. and four 116 ft. steel truss spans, two 50 ft. reinforced concrete spans and reinforced concrete piers and abutments.

Bids will be received on the complete work or separately as follows:

- (1) Concrete superstructure and substructure work.
- (2) Steel superstructure—Steel.

#### BRIDGE OVER CUMBERLAND RIVER AT BURNSIDE

One 291 ft., two 200 ft. and two 126 ft. steel truss spans and reinforced concrete piers and abutments.

Bids will be received on the complete work or separately as follows:

- (1) Concrete substructure.
- (2) Steel superstructure.

Further information, plans, bidding proposals, etc., will be furnished upon application to the Frankfort Office.

Blueprints of this work will be on file for inspection only at the District Engineer's headquarters.

The right is reserved to reject any and all bids.

THE STATE HIGHWAY COMMISSION.  
By BEN JOHNSON,  
Chairman.

Bids close September 4, 1930.

## Maryland Highway Work

### DEPARTMENT OF PUBLIC WORKS STATE OF MARYLAND STATE ROAD COMMISSION

#### NOTICE TO CONTRACTORS

Baltimore, Md.

SEALED PROPOSALS for building one section of State Highway as follows:

Somerset County, Contract 8-44-12—One section of State Highway along the Princess Anne-Deal Island Road, between Dames Quarter and Chance, a distance of 1.9 miles.

Will be received by the State Roads Commission at its offices, Federal Reserve Bank Building, Calvert and Lexington Streets, Baltimore, Maryland, until 12 M. on the 4th day of September, 1930, at which time and place they will be publicly opened and read.

Bids must be made upon the blank proposal form which, with specifications and plans, will be furnished by the Commission upon application and cash payment of \$1.00, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of Five Hundred (\$500) Dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

BY ORDER of the State Roads Commission this 20th day of August, 1930.

G. CLINTON UHL, Chairman.  
L. H. STEUART, Secretary.

Bids close September 18, 1930.

**Bridges****KENTUCKY STATE HIGHWAY  
DEPARTMENT****DIVISION OF CONSTRUCTION**

Frankfort, Ky., August 14, 1930.

Sealed bids will be received by the State Highway Commission at its office, Frankfort, Kentucky, until 2 P. M. on the 18TH day of SEPTEMBER, 1930, for the construction of:

**KENTUCKY RIVER BRIDGE NEAR  
TYRONE**

One 360-foot steel truss span, two 24-foot steel truss spans, three 60-foot and six 43-foot steel I-beam spans and reinforced concrete piers and abutments.

Bids will be received on the complete work or separately as follows:

1. Reinforced concrete substructure.
2. Steel superstructure.

**CUMBERLAND RIVER BRIDGE AT  
CANTON**

Two 320-foot steel truss spans, two 120-foot steel truss spans, forty-eight 45-foot I-beam spans, steel towers and reinforced concrete piers and abutments.

Bids will be received on the complete work or separately as follows:

1. Reinforced concrete substructure.
2. Steel superstructure and towers.

**TENNESSEE RIVER BRIDGE AT  
EGGERS FERRY**

One 366-foot steel truss span, three 320-foot steel truss spans, two 150-foot steel truss spans, thirty-eight 45-foot I-beam spans, steel towers and reinforced concrete piers and abutments.

Bids will be received on the complete work or separately as follows:

1. Reinforced concrete substructure.
2. Steel superstructure and towers.

**OHIO RIVER BRIDGE AT CARROLLTON**

One continuous steel truss 1538 feet long, composed of two 769-foot spans, two 382-foot steel truss spans, six 98-foot steel truss spans, twelve 34-foot 6-inch concrete girder spans, reinforced concrete piers, abutments and retaining walls.

Bids will be received on the complete work or separately as follows:

1. Concrete superstructure, piers, abutments and retaining walls.
2. Steel Superstructure.

Further information, plans, bidding proposals, etc., will be furnished upon application to the Frankfort office.

Blueprints of this work will also be on file for inspection only at the District Engineer's headquarters.

The right is reserved to reject any and all bids.

**THE STATE HIGHWAY COMMISSION.**  
By BEN JOHNSON,  
Chairman.

Bids close September 3, 1930.

**Bridges****DEPARTMENT OF PUBLIC WORKS  
STATE OF MARYLAND****STATE ROADS COMMISSION****NOTICE TO CONTRACTORS**

Baltimore, Md.

SEALED PROPOSALS for building bridges as follows:

Anne Arundel County, Contract AA-75-73—Substructure, concrete floor, approaches, etc., for the proposed grade elimination over the tracks of the Pennsylvania Railroad Company at Severn.

Harford County, Contract H-99-42—Substructure for the bridge on the road from Churchville to McCann's Corner, over Deer Creek, known as Priest Ford Bridge.

Harford County, Contract H-100-42—Structural steel superstructure for the bridge on the road from Churchville to McCann's Corner, over Deer Creek, known as Priest Ford Bridge.

Will be received by the State Roads Commission at its offices, Federal Reserve Bank Building, Calvert and Lexington Streets, Baltimore, Maryland, until 12 M. on the 3rd day of September, 1930, at which time and place they will be publicly opened and read.

Bids must be made upon the blank proposal form which, with specifications and plans, will be furnished by the Commission upon application and cash payment of \$1.00, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of Five Hundred (\$500) Dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

BY ORDER of the State Roads Commission this 20th day of August, 1930.

G. CLINTON UHL, Chairman.  
L. H. STEUART, Secretary.

Bids close September 9, 1930.

**Reinforced Concrete Bridge**

Knoxville, Tenn.

Sealed bids for the construction of a reinforced concrete bridge over the Tennessee River at Henley Street, in the City of Knoxville, Tennessee, will be received by the City of Knoxville, Tennessee, at the office of George R. Dempster, City Manager, until 11 o'clock A. M. September 9, 1930, at which time they will be publicly opened and read.

The bridge will consist of one 165-ft. 0-in. arch span, one 183-ft. 0-in. arch span, one 200-ft. 0-in. arch span, two 212-ft. 0-in. arch spans, one 297-ft. 0-in. arch span, six 50-ft. 0-in. deck girders, walls, abutments and piers, grading and paving of approaches, paving of bridge, installation of water mains, links to support gas mains, telephone conduits and manholes, power conduits and manholes, lighting system for bridge and approaches, with independent system for channel lights and flood lighting system, all as shown on the plans and described in the specifications. The bridge roadway shall be 54 feet between curbs and with a 6-foot sidewalk provided on each side.

Plans and specifications can be examined at the office of the City Manager or the Director of Public Service of the City of Knoxville, Tennessee. Plans, specifications and proposals may be secured upon the payment of \$25.00, which amount will not be refunded.

All proposals must be made out on the forms printed in the specifications and must be accompanied by a certified cashier's check in the amount of \$50,000.00, drawn on a Tennessee National Bank, and made payable to the City of Knoxville, Tennessee, without recourse.

The successful bidder will be required to furnish a construction bond in a sum equaling the amount of the contract, signed by a Surety Company now having a duly authorized representative in the City of Knoxville, Tennessee. The right is reserved to accept or reject any or all proposals and to waive informalities.

(Signed) GEORGE R. DEMPSTER,  
City Manager of Knoxville, Tennessee.  
W. W. MYNATT,  
Director of Public Service.

Bids close September 11, 1930.

**Gasoline and Oil**

Richmond, Va.

12 noon office Va. Dept. of Highways, Richmond, Va., 1,281,000 gallons gasoline, 78,550 gallons automotive lubrication oil. Bids must be submitted on proposal forms furnished by State.

Bids close September 11, 1930.

**Gas Plant and Franchise**

Alexandria, Va.

Bids will be received by the City Council of Alexandria, Virginia, on Thursday, September 11th, 1930, at 3 P. M. for the city gas plant and distribution system and a thirty-year franchise.

The right to reject any and all bids is reserved.

Population of Alexandria, 25,000.

For further information regarding terms of sale and franchise address:

WALLACE LAWRENCE,  
City Manager.

Bids close September 10, 1930.

**Prettyboy Dam****BUREAU OF WATER SUPPLY**

Baltimore, Md.

Sealed bids, in duplicate, endorsed "Proposals for the Construction of Prettyboy Dam," addressed to the Board of Awards of Baltimore City, will be received at the office of the City Register, City Hall, Baltimore, Md., until 11 A. M. Standard Time, Wednesday, September 10, 1930, at which time they will be publicly opened and read.

Specifications, plans and proposal forms may be obtained at the office of the Water Engineer, Room 501 Municipal Office Building, Baltimore, Md., on and after August 22, 1930. A charge of ten dollars (\$10.00) will be made for each set of specifications and drawings, and this amount will not be refunded.

All bids must be accompanied by a certified check of the bidder, drawn on a clearing-house bank for the sum of Twenty-five Thousand Dollars (\$25,000.00), payable to the order of the Mayor and City Council of Baltimore.

Bond in the amount of the contract price must be furnished by the successful bidder.

The Board of Awards reserves the right to reject any or all bids.

APPROVED:  
E. G. ROST,  
Water Engineer.

Bids close September 3, 1930.

**Maryland Highway Work****DEPARTMENT OF PUBLIC WORKS****STATE OF MARYLAND****STATE ROADS COMMISSION****NOTICE TO CONTRACTORS**

Baltimore, Md.

SEALED PROPOSALS for building six sections of State Highway as follows:

Anne Arundel County, Contract AA-100-74—One section of State Highway along the Sappington-Odenton Road from the end of Contract AA-91 to Odenton, a distance of 0.38 mile (concrete).

Baltimore County, Contract B-163-411—One section of State Highway along the Falls Road from Ridge Church to Shewan, a distance of 1.4 mile (alternate bids for resurfacing with hot and cold bituminous mixtures).

Baltimore City—Contract BC-92-74—One section of State Highway along 41st Street from Roland Avenue to Woodberry Avenue, a distance of 0.9 mile (sheet asphalt).

Harford County, Contract H-82-42—One section of State Highway along the Priestford Bridge Road from the end of Contract H-81 toward McCann's Corner, a distance of 3.0 miles (penetration macadam).

Howard County, Contract Ho-83-54—One section of State Highway from Ilchester Road to Montgomery Road, a distance of 1.46 miles (penetration macadam resurfacing).

Wicomico County, Contract Wi-66-12—One section of State Highway along the Powellville-Whitton Road from the end of Contract Wi-52 toward Whitton, a distance of 1.0 mile (concrete).

Will be received by the State Roads Commission at its offices, Federal Reserve Bank Building, Calvert and Lexington Streets, Baltimore, Maryland, until 12 M. on the 3rd day of September, 1930, at which time and place they will be publicly opened and read.

Bids must be made upon the blank proposal form which, with specifications and plans, will be furnished by the Commission upon application and cash payment of \$1.00, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of Five Hundred (\$500) Dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

BY ORDER of the State Roads Commission this 19th day of August, 1930.

G. CLINTON UHL, Chairman.  
L. H. STEUART, Secretary.

Bids close September 10, 1930.

**Excavation for Drainage**

Birmingham, Ala.

Sealed proposals will be received by the undersigned until ten o'clock A. M. Wednesday, September 10, 1930, for certain earth and rock excavation which is proposed to be done by the City of Birmingham on Section Two of Village Creek drainage project (from Avenue F, Ensley, to Avenue W, Ensley).

The approximate principal quantities being as follows: 63,900 Cu. Yds. Earth Excavation; 15,800 Cu. Yds. Rock Excavation.

Specifications may be obtained and plans examined at this office. The right is reserved to reject any or all proposals.

A. J. HAWKINS,  
City Engineer.

Bids close September 10, 1930.

**Excavation for Drainage**

Birmingham, Ala.

Sealed proposals will be received by the undersigned until ten o'clock A. M. Wednesday, September 10, 1930, for certain earth and rock excavation which is proposed to be done by the City of Birmingham on Section One of Valley Creek drainage project (from a point approximately 705 feet southwest of the southwest City Limits of Birmingham to 18th street, southwest).

The approximate principal quantities being as follows: 137,600 Cu. Yds. Earth Excavation; 73,100 Cu. Yds. Rock Excavation.

Specifications may be obtained and plans examined at this office. The right is reserved to reject any or all proposals.

A. J. HAWKINS,  
City Engineer.

# CLASSIFIED OPPORTUNITIES

## MINERAL AND TIMBER LANDS, WATER POWER, MISCELLANEOUS PROPERTIES

**FOR SALE**—5000 acres oil and gas leases on structure, settled production. Royalties and mineral rights on large tract. Complete data furnished on request.

W. P. HARLEY, Bowling Green, Ky.

### TIMBER AND TIMBER LAND

**LARGE ACREAGE** second-growth pine timber near Jacksonville, Florida, for sale at bargain price. Other large tracts in Southeast Georgia. The James D. Lacey Company, Barnett Bldg., Jacksonville, Fla.

### HARDWOOD LUMBER

**TO FORWARD LOOKING** Radio or Furniture Manufacturers: Hardwood Lumber prices are low now, but don't overlook the point that this condition is TEMPORARY. An opportunity is offered to secure a steady FUTURE supply of Southern Hardwoods at MANUFACTURING COST. INSURE your SUPPLY and assure yourself of LOW COST. Address No. 9040, care of Manufacturers Record, Baltimore, Md.

## FARM, FRUIT AND TRUCK LANDS

### LOUISIANA

**ST. CHARLES PARISH, LOUISIANA**, offers opportunities in cattle ranches, agricultural and industrial sites. St. Charles Bank & Trust Co., Sellers, La.

### VIRGINIA

**150 ACRES**—Land's End Farm, Severn River, near Mobjack Bay, Gloucester County; old brick house, seven rooms.

RICHARD W. JONES, Naxera P. O., Va.

### SOUTH ISLES PLANTATION

**830 acres**, 450 acres farming and pasture land, about 300 acres fertile river bottoms, balance woodland and timber. Large, attractive mansion in grove of several acres handsome box wood, shrubbery, flowers and many varieties of trees. Excellent stock barn, tenant house, hog sheds and other outbuildings. Near Lynchburg in good community. Price \$44,000. Full details and illustrated catalogue of other attractive places upon request.

GEO. V. VENABLE & CO., Lynchburg, Va.

## SOUTHERN ESTATE

**FOR SALE**—Beautiful Colonial Estate; ideal winter and all year round climate. MRS. ISABELLE R. BELL, "Bellemont Park," Mount Olive, North Carolina.

## SOUTHERN HOMES

### SOUTHERN HOMES

In the best city in the Carolinas, \$10,000 to \$75,000, according to size and location.

F. C. ABBOTT & CO.,

Charlotte, N. C.  
32 years in Charlotte Real Estate.

## BUSINESS OPPORTUNITIES

**AMBITIOUS ASSOCIATE** able to finance his part of large tracts timber and land business showing \$300,000 potential profit annually; 40 years experience; no investment. Wellsford, Laredo, Texas.

**MANUFACTURERS**—Write for our FREE Classification Sheets of inventions for sale, covering 135 main subjects, and in one or more of which you will doubtless be interested. ADAM FISHER MFG. CO., 578 Enright, St. Louis, Mo.

### FOR SALE

On Jackson Street, opposite St. Charles Hotel, 170 ft., with 2-story, 8-room home, \$6500; 62 ft. on Hendry Street, including Undertaking Building, \$7500, or all for \$12,900 cash.

P. JOHN HART REALTY CORP.,  
P. O. Arcade,  
Fort Myers, Fla.

## BUSINESS OPPORTUNITIES

**LONG TERM LOANS**, large amounts, made on industrial, mercantile, sawmill properties. THOS. W. GILMER, Attorney, Bay Minette, Alabama.

## INDUSTRIAL SURVEYS

**ENGINEERING REPORTS** on resources of cities and towns. Recommendations for industrial development and zoning made by specialists in locating industries.

TECHNICAL SERVICE CO.,  
Woolworth Building New York City

### HOW ARE YOUR PROFITS RUNNING?

We render a unique service to business men, analyzing their problems of organization, personnel, management, finance, distribution and location. United States Business Extension Bureau, 310 South Michigan Avenue, Chicago, Illinois.

## DEVELOPING AND ENGINEERING

### ORGANIZING—DEVELOPING—ENGINEERING

Engineering firm, widely experienced in investigating, organizing, developing, designing and supervising construction, solicit correspondence regarding development or extension of meritorious projects and existing industries, power plants and utilities. Address No. 8016, care Manufacturers Record.

## INDUSTRIES WANTED

**WELL-LOCATED** Southern town wants industry. Will furnish plant, moving expenses, additional capital and other concessions.

INDUSTRIAL SERVICE CORP.,  
Asheville, N. C.

## INDUSTRIAL PLANTS

### FOR SALE

**SHEET METAL STAMPING PLANT** fully equipped and operating. Sheets and angles available at mills here. Address H. McDERMOTT,  
P. O. Box 42, Birmingham, Ala.

**COMPLETE WOODWORKING PLANT**, suitable for furniture or other wood articles. Dry kiln side track, with ample trained labor available. Can be bought for less than one-half reproduction value. First Securities Company, Chattanooga, Tenn.

### FOR SALE

Home Industry Iron Works, consisting of Foundry, Machine, Boiler and Blacksmith Shops and Real Estate. Located at Mobile, Ala., on the Louisville & Nashville Railroad, near river front. Plant is one of the best in Mobile. Will sell at a bargain. Address MRS. A. KLING, 254 North Jackson Street, Mobile, Ala.

## FACTORY SITES

**TWO AND ONE-QUARTER MILES** railroad frontage industrial sites for sale at Baton Rouge. Southern Land and Investment Company, Baton Rouge, La.

### FACTORY SITE ON DEEP WATER

If you are seeking an ideal deep water industrial location in Baltimore, Maryland, on one of the finest harbors in the world, see advertisement on page 88, August 21st issue of the Manufacturers Record.

W. S. CAHILL CO.,  
Key Highway and Webster Street,  
Baltimore, Md.

## PATENT ATTORNEYS

EDWARD C. SASNETT, Atty. at Law, formerly a Principal Examiner in the U. S. Patent Office. I offer to inventors and manufacturers a strictly personal service based on twenty years' experience in patent work. McGill Building, Washington, D. C.

## PATENT ATTORNEYS

**PATENTS**—Booklet free. Highest references. Best results. Promptness assured. WATSON E. COLEMAN, Patent Lawyer, 724 Ninth St., N. W., Washington, D. C.

**FREE "PATENT PARTICULARS"** Sterling Buck, over 23 years Registered Patent Attorney. Prompt and thorough services Suite M 629 F, Washington, D. C.

**SEYMOUR & BRIGHT**, Registered Patent Attorneys. Established 1876. **PATENTS, TRADEMARKS, COPYRIGHTS.** Prompt and thorough service. Suite 600-4, Barrister Building, Washington, D. C.

**PATENTS—TRADEMARKS—COPYRIGHTS** Charlotte office convenient to South. PAUL B. EATON, Registered Patent Attorney, 218 Johnson Building, Charlotte, N. C., and 314 McLachlen Building, Washington, D. C.

## AGENCIES WANTED

**SALES REPRESENTATIVE**—Large and valuable acquaintance with foundries, stove manufacturers, Coal mines and supply houses in entire South wishes immediate connection; salary or commission. Highest references. Address W. J. BACH, 1139 So. 14th Street, Birmingham, Ala.

## REPRESENTATIVES WANTED

**SALESMEN WANTED**—ATTRACTIVE PROPOSITION—Sell to CONTRACTORS and BUILDERS LUMBER, MILLWORK and HARDWARE on commission. If interested, address CHICAGO & RIVERDALE LUMBER CO., RIVERDALE, CHICAGO, ILL.

**IF YOU HAVE** a following among steam boiler operators and are not afraid to work you can make good money by selling our Boiler Compounds on commission basis. We make water analysis and guarantee results on our Water and Metal Treatments. Write for particulars. SOUTHERN PRODUCTS CORPORATION, New Orleans, La.

**WANTED—HIGH CLASS SALESMEN** OR wholesale firm to represent us in restricted territory to the Industrial, Railroad and Contracting trade for the sale of JOINTITE lumber. This product just recently on market. An opportunity for thoroughly reliable representative to make good connection is offered, provided references are satisfactory.

Apply  
J. K. GRUNER LUMBER COMPANY,  
St. Louis, Mo.

## SITUATIONS WANTED

**NOTICE**—Young man desires position as stenographer or typist. A-1 references. Go anywhere. Write GEO. MEYER, 58 Westley Street, Newnan, Ga.

## MEN WANTED

**WANTED**—Salesman experienced in selling lumber or creosoted wood products. Give experience and education. Address No. 9032, care of Manufacturers Record.

A PROGRESSIVE and conservative manufacturing concern in Kansas City, Missouri, can use the services of a high-class salesman or executive, with some capital, to be used for expansion. Address No. 9041, care of Manufacturers Record, Baltimore, Md.

**IF YOU ARE OPEN** to overtures for new connection and qualified for a salary between \$2500 and \$25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service, of recognized standards and reputation, through which preliminaries are negotiated confidentially for positions of the caliber indicated. The procedure is individualized to each client's personal requirements, your identity covered and present position protected. Established twenty years. Send only name and address for details.

R. W. BIXBY, INC.,  
103 Downtown Bldg. Buffalo, New York



# RESALE DEPARTMENT

MACHINERY

EQUIPMENT

SUPPLIES



**SATISFACTION**

**ALBERT PIPE SUPPLY CO., INC.**

• NEW-RECLAIMED-USED

**PIPE**

ALL SIZES CUT TO SKETCH  
AND STOCKED

**BERRY & NORTH 13th STS.  
BROOKLYN, N.Y.**

**GUARANTEED**

**SERVICE** **PRICES**

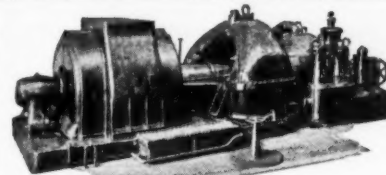
**PIPE NEW**

**SECOND HAND**

Overhauled and Tested  
New Threads and Couplings  
Established 1904

**Albert & Davidson  
Pipe Corp.**

Second Ave., 50th-51st St., Brooklyn, N. Y.  
Telephone Sunset 1900



10,000 KVA Turbo typical of 4 units recently delivered and similar to the following.

**PRACTICALLY NEW 100% INTERNAL EXCELLENCE WESTINGHOUSE CONDENSING TURBO UNITS COMPLETE—INSTANT SHIPMENT**

1—15,000 KW CW-218 Frame—1800 RPM  
1—10,000 KVA CW-118 Frame—1800 RPM  
1—7,500 KW CW-78 Frame—1800 RPM  
1—5,500 KVA CW-78 Frame—3600 RPM  
1—4,000 KVA CW-78 Frame—3600 RPM  
2—1,700 KVA CW-28 Frame—3600 RPM  
1—1,500 KVA CW-16 Frame—3600 RPM  
(3 phase, 60 cycle, standard voltages)

**A.S.M.E. CODE DESIGN BOILERS 200-225 lbs.**

2—1500 H.P. Cross Drum B & W  
2—2850 HP Ladd Bent Tube  
5—627 HP Stirling Plant, modern stokers, auxiliaries

8—504 HP B & W Vertical Steel headers, et al.

**CONDENSERS MOTOR GENERATOR SETS**

Verification and proof of new equivalent condition easily reached on personal inspection

50% to 200% saving on investment

Send us list of your requirements—or what you have for sale

COME TO CINCINNATI



## PIPE

Rethreaded, reconditioned, guaranteed, suitable for all practical purposes, furnished with new threads and couplings, 400,000 feet in all sizes from 24" to 1/4".

Also large stock of spiral pipe, sizes 7", 10", 12", 14", 20" and 24".

Large stock of valves and fittings, screwed and flanged. Can make attractive prices.

**MARINE METAL & SUPPLY CO.**  
167 South St., New York City

## IRON AND STEEL PIPE

Large quantity new and used Government material in excellent condition, ready for immediate shipment. Low prices.

**CENTRAL PIPE & SUPPLY CO.**  
Box 1099 Charleston, W. Va.

Second Hand and New **PIPE** Overhauled and Coupled  
Wrought Iron Rethreaded

Also Cut to Sketch

**Greenpoint Iron & Pipe Co., Inc.**  
187-197 Maspeth Ave. Brooklyn, N. Y.

## SHOVELS or CRANES

FOR SALE or RENT  
RENTAL PAYMENTS MAY APPLY ON PURCHASE

1—Lorain 75-A, combination shovel and clamshell. Purchased new September, 1929. In almost new condition. Located in Eastern Pennsylvania.

1—30-B Bucyrus steam dragline on caterpillars equipped with 35-ft. boom, 1 cu. yd. bucket. Machine in excellent condition, priced for quick sale. Located near Chattanooga, Tenn.

1—Erie Type B steamer, 1 cu. yd. dipper. This machine is in splendid condition and is reasonably priced. Located in Central Tenn.

1—Insley Combination Clamshell and back hoe 1/2 c. yd. capacity, gasoline power. In good operating condition. This machine is a real bargain. Located in Southern Tenn.

1—Type "O" 1/4 yard Thew steam shovel center drive truck in splendid condition. Priced right. Can be purchased on liberal terms. Located at Brooklyn, New York.

We have both Steam and Gasoline Excavators ranging from 1/2 to 1 1/2 cu. yd. capacity in various parts of the country that will be sold at extremely low prices or leased with leased payments made applying on purchase price.

**CHARLES F. COHEN**

LIMA, O., OFFICE:  
Lima Trust Bldg.  
Tel. Main 4824

NEW YORK OFFICE:  
2351 Graybar Bldg.  
Tel. Lexington 9934

Write or Phone at My Expense

## 30 KVA Diesel Oil Engine Unit

30 KVA .8 PF 3 Ph. 60 Cy. 220 Volt 300 RPM  
Fairbanks-Morse generator direct connected to Fairbanks-Morse Diesel Y engine Style V complete with chain driven exciter, switchboard, motor driven air compressor and cooling pump, air and water receivers. In excellent condition and reasonably priced.

Just one of the many "ROCKFORD RE-BUILT" units we have available for immediate shipment. Send for complete stock list Bulletin No. 38.

**ROCKFORD POWER MACHINERY CO.**  
620-626 Sixth St. Rockford, Ill.

# 5000 TRANSFORMERS READY For Your Selection

We also Buy, Repair and Maintain  
TRANSFORMERS OF EVERY TYPE

*The* **ELECTRIC SERVICE CO. Inc.**  
America's Used Transformer Clearing House  
212 Walnut Street Cincinnati, Ohio

We buy modern type transformers—any size—any quantity.  
Wanted especially—high voltage large capacity transformers in carload shipments.



FOR SALE

### A C G. E. Turbine With Condenser

1—Practically new, in A-1 condition, latest type G.E. 300 kw. mixed pressure Turbine with direct connected DC Generator with Wheeler Radojet Condenser and complete switch-board. Also complete set of blue prints. This equipment can be purchased at bargain. Write or wire immediately.

**AARON FERER & SONS**  
Omaha, Nebr.  
Machinery and Equipment Division

### FOR SALE

2—Skinner Unaflo Engines, direct connected to 2-200 KW Crocker Wheeler DC Generator Sets, 125 to 250 volts, 3 wire with panel, sets are as good as new. Priced at a bargain. Send for full details.

**Consolidated Products Company, Inc.**  
335 Doremus Avenue, Newark, N. J.  
Mulberry 0600

### BLUE PRINTING MACHINE FOR SALE

Very reasonable. One Pease Blue printing machine No. 1370. Good condition. Used very little. Address

**L. M. McBEE, JR.**  
Woodside Building Greenville, S. C.

### Low Cost

### Long Life

### UNEXCELLED SERVICE



Three strong factors that have kept Gregory HI-Grade-Rebuilt Motors and Electrical Machinery in the lead since 1893.

Before buying consult Gregory's 80-page illustrated Monthly Bargain Sheet. It will save you Money, Time and Worry. Thousands of buyers have proved to their own satisfaction and profit that it pays to buy

**GREGORY HI-GRADE-REBUILT**  
Electrical Machinery  
Write, phone or wire



**Gregory  
Electric  
Company**

1601 S. Lincoln St., Chicago

### FOR SALE

Approximately 6,000 ft. 1/4" New Black pipe in four foot lengths, threaded both ends.

**Maryland Pipe and Steel Corp.**  
Ostend & Scott Sts., Baltimore, Md.

**REAL BARGAINS—New—Never Used—Diesels.**  
2—200 HP DeLaVergne, Horizontal Full Diesels, suitable for belted or direct connected service, at less than half regular cost.  
2—66 HP Foss, 2 cyl. Vertical complete Diesel Power Units, with radiator cooling equipment, etc., at exactly 1/3 regular cost.

**ZELNICKER IN ST. LOUIS**  
Rails, Equipment, Machinery, Tanks, Sheet Steel Piling, Pipe, Etc.

## RANDLE

### OFFERS BIG BARGAINS IN

Used and Rebuilt Engine Generator Sets, Turbine Generator Sets, Motors, Rotary Converters, Generators, Motor Generator Sets, Engines, Boilers, Steam and Electric Machinery of all kinds, also Machine Tools. Send for our new machinery list. Yours for the asking. Established 80 years

**The RANDLE  
MACHINERY CO.**

1734 Powers St., Cincinnati, Ohio

### Generator and Screw Conveyors FOR SALE

1—100 K.V.A. A. C. Bullock Generator, 2300 volts, 60 cycle, 3 phase, 1200 R.P.M. direct connected to 120 volt 20 ampere exciter, complete with slate panels, voltage and ampere meters and rheostats, all good as new; 400 ft. 9" r.h. screw conveyors with hangers; no box. Will sell at sacrifice.

**St. Pauls Cotton Mill Company**  
St. Pauls, N. C.

### Machine Tools Power Equipment Boilers Electric Motors

**DELTA EQUIPMENT CO.**  
148 N. 3rd St. PHILADELPHIA

## RAILROAD AND CONTRACTORS' EQUIPMENT

### RAILROAD and CONTRACTORS EQUIPMENT

40 Standard and 36" Gauge Modern Direct-connected Locomotives, in all types and weights from 8 to 75 tons.  
10 Standard and 36" Gauge Geared Locomotives, all weights.  
15 Steam Shovels and Locomotive Cranes of different types and sizes.  
3000 Tons Relaying Rails, all sizes, on our Birmingham yards.  
100 Sets 35 and 40-lb. Frogs and Switches; good as new.  
Tie plates, track spikes and track bolts, immediate shipment from Birmingham stock

Your inquiries will receive careful and prompt attention  
**BIRMINGHAM RAIL & LOCOMOTIVE CO., Birmingham, Ala.**

### GENERATOR SETS

2—50 KVA, 220 volt, 3 phase, 60 cycle Ridgeway Generators, direct connected to Ridgeway Engines.  
1—500 KW, 2300 volt, 3 phase, 60 cycle Turbo Generator set with condenser.

### BOILERS

2—500 H. P. Heine Water Tube, 100 lbs. pressure, A.S.M.E. code.  
2—180 H.P. Keeler water tube, 200 lbs. pressure, A.S.M.E. code.  
1—150 H.P. 72" x 18' Hor. ret. Tubular, 150 lb. pressure, A.S.M.E. code.

### HEATERS

2—1000 H.P. Cochrane open type Feed Water Heaters.

### METAL WORKING TOOLS

No. 4 Hillis & Jones single end punch belt drive, 36" throat, cap. 1 3/4" x 1".  
No. 3 Southwark single end punch, 24" throat arch jaw, motor drive, cap. 3/4" x 3/4".  
8" Covington squaring shear 1/4" cap.  
2000 lb. Chambersburg double frame steam forging hammer.  
1100 lb. Niles Cement Pond single frame forging hammer.  
No. 1 Hazel belt driven hammer cap. 2" x 2".  
20 spindle Nateso multiple drill No. 2 taper.  
16 spindle Bausch multiple drill No. 2 taper.  
34" Aurora upright drill, No. 5 taper motor drive.

**THE O'BRIEN MACHINERY CO.**

115 North Third Street

Philadelphia, Pa.

## Someone Can Use that MACHINERY YOU HAVE IN STORAGE

Increase your bank deposit and help out the other fellow. Used machinery advertised in the

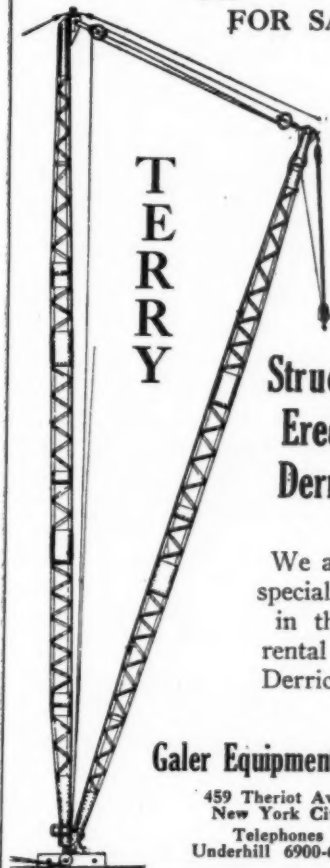
### RESALE DEPARTMENT

will tell our readers about it.

## MANUFACTURERS RECORD

Baltimore, Md.

FOR RENT  
OR  
FOR SALE



**Structural  
Erectors  
Derricks**

We are  
specialists  
in the  
rental of  
Derricks

**Galer Equipment Corp.**

459 Theriot Ave.,  
New York City  
Telephones  
Underhill 6900-6901

Three miles 20 lb. Portable Track, one 7 ton Whitcomb Locomotive and Batch Box Cars, all 24-in. gauge. Located in Virginia. Very attractive prices quoted to move quickly.

**M. K. FRANK**  
1204 Clark Bldg., 220 East 42nd St.  
Pittsburgh, Pa. New York City

### LOCOMOTIVE CRANE FOR SALE

1—20 ton Industrial Locomotive Crane, 50' Boom, Standard gauge, fine operating condition.

**SAMLER MACHINERY & EQUIPMENT CO.**  
208 W. Pratt Street Baltimore, Md.

### BUY OR RENT

#### STEAM SHOVEL

1—Thew 1-yd. Crawler Type Steam Shovel.

#### TRUCK CRANES

1—6½-ton Universal, equip. with Christy Crawler.  
This outfit was purchased new April, 1928.

#### GASOLINE CRANES

1—No. 208 P.&H. Crane, 40-ft. boom.  
1—K-2 Comb. Link-Belt Crawler Crane, 40-ft. boom and 1-yd. shovel.  
1—K-1 Link Belt Crawler, 40-ft. boom.  
1—Mead-Morrison Gas Crawler Crane, 35-ft. boom. New 1929.  
2—K-35 Link-Belt Crawler Cranes, 40-ft. booms.

#### PILE HAMMERS

All sizes—McKiernan-Terry—for rent or sale.  
1—No. 400 Vulcan Pile Extractor.

Just real dependable **REBUILT EQUIPMENT**—  
Guaranteed Condition—Prompt Delivery from Stock

**Howard W. Read Corporation**

Terminal Sales Bldg.

800 North Delaware Ave., Philadelphia, Pa.

### RELAYING RAILS — SWITCHES TRACK MATERIAL

**THE PERRY BUXTON DOANE CO.**

Pennsylvania Bldg. Philadelphia, Pa.

### FOR SALE OR RENT

2—Keystone Graders, Model No. 4.  
1—10 ton Monarch 3 wheel Steam Roller.  
1—5 ton Buffalo Tandem Steam Roller.  
2—10 ton Buffalo Springfield Steam Rollers.  
Large stock Rock Crushers, Screens and Elevators.

**JOHNSON & HOEHLER**  
Fernwood, Del. Co. Pennsylvania

## IDLE MACHINERY

Can be  
Disposed of  
by  
Advertising  
it in the

**Manufacturers Record**  
Baltimore, Md.

### Rebuilt and Reconditioned EXCAVATORS

For Sale, or Lease With Option to Buy

Marion No. 32 1 Yard Steam Shovel on full crawlers. Ready for immediate delivery. An exceptional bargain, located at Pittsburgh.

P&H Model 400 ¾ yard Clamshell, 35 foot boom. Has been very carefully reconditioned. At Hoboken plant.

Bucyrus 31-B Steam Shovel. In excellent shape. At Hoboken plant.

P&H Model 400 Dragline, ¾ yard, in good shape, ready to go. Located at Chicago plant.

Northwest Model 105 1 yard Crane. Fully reconditioned. At Hoboken plant.

P&H Model 206 ¾ yard Shovel. Thoroughly overhauled and in very good operating condition. At Hoboken plant.

#### LIBERAL TERMS

Write or wire at our expense if you do  
not see what you want

**EXCAVATING EQUIPMENT  
DEALERS, INC.**

EXCLUSIVELY EXCAVATING EQUIPMENT

Hoboken, N. J., 1706 Willow Ave.

Berkeley, Cal., 2857 Ninth St.

West Allis, Wis., 5905 Greenfield Ave.

Los Angeles, 2348 E. 37th St.

Chicago, Ill., 1040 W. Division St.

### FLORIDA USED EQUIPMENT

P. & H. Shovel, Model 206 used less than 12 months and in new condition.

Koehring No. 1 crane, 45 ft. boom and clamshell, completely rebuilt.

P. & H. model 206 equipped as dragline.

Complete line used locomotives, cars, caterpillar tractors, road rollers, pumps, etc.

**HEWITT-PHELPS MACHINERY CO.**  
20th St. and 4th Ave. So. St. Petersburg, Fla.  
Phone (day) 46864, (night) 48084

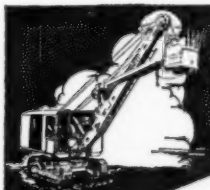
### NEW AIR TOOLS AT ½ PRICE

13 size B. "Thor" air motor metal drills (cap'y. up to 2")  
48 size C. "Thor" air motor metal drills  
20 size 42 "Thor" air motor metal drills  
9 size — "Thor" air motor metal drills (Cap'y. up to 9/16")  
11 size BW "Thor" air motor metal drills (Cap'y. up to 2")  
15 size 8 "Thor" air motor close corner metal drills.  
14 4X "Little Giant" air motor metal drills.  
12 2X "Little Giant" air motor metal drills.  
50 No. 60 "Keller Master" riveting hammers, also several other makes and sizes.

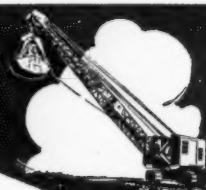
These are absolutely brand new tools on which we will save you 50%.

**W. M. SMITH & COMPANY**  
Box 1709 Birmingham, Ala.

**SHOVELS**  
¾-1 ¼ and  
1 ½ yd. capacity



**CRANES**  
6-10-12-15-17 and  
20 ton capacity



## NORTHWESTS FACTORY REBUILT with NEW MACHINE GUARANTEE

These machines have been completely rebuilt in our factory and carry the same guarantee as new equipment. Write or wire.

**NORTHWEST ENGINEERING CO.**

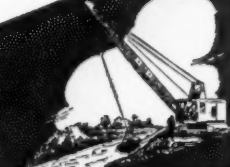
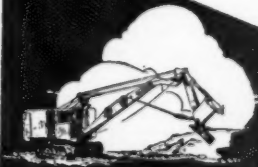
1833 Steger Building

Chicago, Illinois

U.S.A.

**PULLSHOVELS**

**DRAGLINES**



**EASTON CARS**



for every industrial purpose  
Any type to your or our design  
**EASTON CAR & CONSTRUCTION CO.**  
10 E 40<sup>th</sup> Street, New York City. EASTON, PENNA.  
PHILADELPHIA PITTSBURGH CHICAGO

**INDUSTRIAL CAR EQUIPMENT**



**THE ATLAS CAR & MANUFACTURING CO.**  
Cleveland, Ohio


**WHITCOMB LOCOMOTIVES**



2 to 100 TONS  
GEAR DRIVE AND OIL-ELECTRIC  
GASOLINE - DISTILLATE - DIESEL - BATTERY  
Write for Bulletin and Performance Data  
**GEO. D. WHITCOMB CO.**  
ROCHELLE, ILLINOIS



**CARS KOPPEL TRACK**



**KOPPEL** for all engineering and industrial uses **KOPPEL**  
NEW YORK CHICAGO  
**KOPPEL INDUSTRIAL CAR & EQUIPMENT CO.**  
SAN FRANCISCO KOPPEL, PA. PITTSBURGH

**ELLICOTT MACHINE CORPORATION**

Hydraulic Dredges—Sand and Gravel Dredges  
Pumps for Sand, Gravel, Dredging  
Hydraulic Dredging Machinery  
Heavy Machinery  
1111 Bush Street BALTIMORE, MD., U. S. A.

**Hydraulic Dredges  
Dipper Dredges  
Sectional Steel Hulls and Barges**

**American Steel Dredge Co.**  
Fort Wayne, Indiana U. S. A.


**THE INDUSTRIAL WORLD ROLLS ON SWEET'S TRACK MATERIALS**



Manufacturers of Rails, Frogs, Switches, for Permanent and Portable Track. Complete line of Steel Posts for Fence and other purposes.  
Catalog will be sent on request  
**SWEET'S STEEL COMPANY**  
MANUFACTURERS  
WILLIAMSPORT PENNA.


If interested in  
**Hoists, Derricks, Cableways**  
or special equipment write for this book  
**"Your Own Success"**  
Good tools and good equipment are essential to success.  
Lidgerwood machines have success built in them.  
**Lidgerwood Manufacturing Company**  
ELIZABETH, NEW JERSEY  
Hoist and Derrick Headquarters  
for 57 years.

**Owen Buckets**




Greater Digging Power  
Faster Operation  
Longer Life  
Guaranteed Against Breakage  
**THE OWEN BUCKET CO.**  
2015 BREAKWATER AVENUE, CLEVELAND, O.  
They get  
**"A Mouthful at Every Bite"** and More Bites Per Day

**Hayward Buckets**




A bucket for every digging and rehandling need... A size for every job.  
THE HAYWARD CO., 50-52 Church St., N. Y.

**BOTTOM DUMPING and TURN-OVER BUCKETS**




Write us for information on Contractors Buckets  
**G. L. Stuebner Iron Works, Inc.**  
Manufacturers of Material Handling Equipment  
So. Hancock St. Long Island City, N. Y.

**KIESLER CLAM SHELL BUCKETS**




Send for latest catalogue  
**JOS. F. KIESLER CO.**  
932 W. Huron St. Chicago, Ill.

**EXCAVATORS DRAGLINES P&H SHOVELS CRANES**



Get Bulletins with complete description of new models. Made in sizes from 1/2 to 4 cu. yds. All convertible.  
**HARNISCHFEGGER CORPORATION**  
4427 W. National Ave., Milwaukee, Wis.

**BUCYRUS ERIE**



**SHOVELS CRANES DRAGLINES DREDGES**

**KNOWN RELIABILITY!**  
Bucyrus-Erie equipment is known the world over, for dependable, low-cost operation. Shovels, Draglines, Cranes—all sizes—Gas, Diesel, Electric, Gas + Air, Diesel + Air, Steam. Also Railway Cranes, Spreader Plows, etc.  
Write for bulletins.  
**BUCYRUS-ERIE COMPANY**  
So. Milwaukee, Wis., Evansville, Ind., Erie, Pa.

*We produce in quantities to meet your requirements*

## SAND and WASHED GRAVEL

**Q**UICK shipments by rail from Baltimore and North East, Md. or in scow and barge lots. Truck or rail shipments from Baltimore, Md.

### The Arundel Corporation

MAIN OFFICE: ARUNDEL BUILDING  
BALTIMORE, MARYLAND

Branches: New York, Norfolk and Miami

**Crushed Stone**  
**Mascot Chatts Roofing Gravel**  
**Asphaltic Roadway Gravel**  
**Asphalt Filler Dust**



AMERICAN LIMESTONE COMPANY  
KNOXVILLE TENNESSEE

## CRUSHED LIMESTONE

**Best for All Purposes**

We manufacture all sizes of stone suitable for all classes of road building and concrete work where only a high-grade limestone is required.

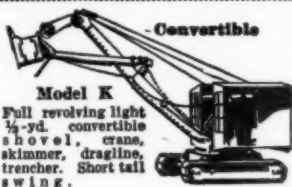
Quarries opened up in 1912.  
Capacity 4000 tons daily.

**Quarries**  
Blue Ridge, Va. Pembroke, Va. Pounding Mill, Va.  
**W. W. BOXLEY & COMPANY**  
Room 711, Boxley Building, - ROANOKE, VA.

## SAND—GRAVEL—BRICK

**FILTER GRAVEL**

Washed Sand and Gravel for Concrete Roads and Buildings  
Filter Gravel, all sizes—Building Bricks  
**FRIEND & CO., INC.** River St., Petersburg, Va.



## POWER SHOVELS

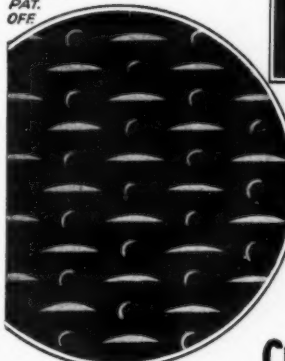
**Cranes, Trenchers**  
**SKIMMERS**

Full or part circle  
**BAY CITY SHOVELS, Inc.**  
Bay City, Mich.

**Practical-  
Convenient-  
Durable-  
Economical-  
Safe.....**



REG. U.S.  
PAT.  
OFF.



This exclusively designed plate, combining the above features, is indispensable for use on detours, bridge floors, railroad crossings, sink holes, factory yards and floors, expansion joints, etc. etc.

As treads on concrete roads they guide traffic and eliminate costly repairs, lasting indefinitely.

They offer safe traction for light or heavy loads. Send for literature.

**CENTRAL IRON & STEEL CO.**

HARRISBURG, PENNA.

Branch Offices in Principal Cities

"KNOBBY" NON-SKID

**CENTRAL FLOOR PLATES**

UNDERWRITERS'  
LABORATORIES  
INSPECTED S.A. 443



for economy and permanence in Road Building and General Construction

**WOODSTOCK SLAG CORP.**

Southern Railway Bldg., Birmingham, Ala.



## WOODHOUSE CHAINS

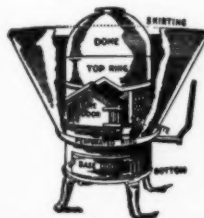
**Stand the Gaff**

**WOODHOUSE CHAIN WORKS**  
Trenton New Jersey

## SAND DRYERS

(With or without External Gratings)

A portable machine, daily capacity 5 to 7 tons.



This dryer has a low first cost, is easily and cheaply operated and guaranteed dry sand.

The low cost makes it valuable for companies needing dry sand on two or more jobs at the same time, thereby eliminating the handling cost of one point only.

Write for descriptive pamphlet

**The Ripley Foundry & Machine Co.**  
Ripley, Ohio

For Contractors, Railroads,  
Trolley Lines, Coal Companies,  
Industrial Plants,  
Foundries

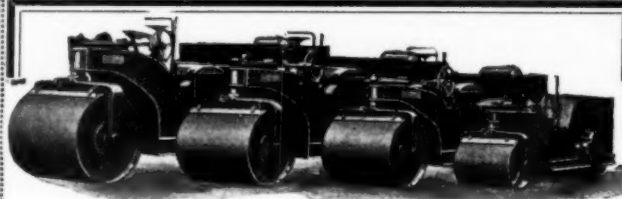
**Mr. Contractor--  
Mr. Highway Engineer--  
You Need This Heater**



**Tested , , Proven , , Reliable**

Made by

**THE JOS. HONHORST CO.**  
1016-20 West Sixth St., Cincinnati, Ohio  
WRITE FOR INFORMATION



## Buffalo-Springfield ROLLERS

Serve Faithfully Under ALL Conditions

In the case of a road roller, every hour lost is a serious matter—particularly on time contracts. With Buffalo-Springfields on the job, there is a sense of security in their reliability exceedingly gratifying to the contractor, whether on maintenance or new construction.

Built in a wide range of weights and sizes, both three wheel and tandem, steam and motor driven.

*Illustrated literature upon request.*

**The Buffalo-Springfield Roller Co.,**  
Springfield, Ohio



## ASPHALT PLANTS

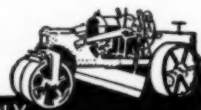
**THE SIMPLICITY  
SYSTEM COMPANY**

CHATTANOOGA, TENNESSEE

ACME ROAD MACHINERY

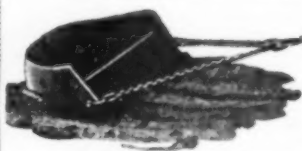
COMPANY, FRANKFORD, N.Y.

**ACME  
Pony Road Rollers**



ACME ROAD MACHY. CO. FRANKFORD, N.Y.

## SAUERMAN "CRESCENT" SCRAPER



The World's lowest cost long-range excavator.

Made in 15 sizes to handle from 10 to 600 tons per hour.

**SAUERMAN BROS., INC.**  
496 S. Clinton St. Chicago

**THE HUBER MANUFACTURING COMPANY**  
310 EAST CENTER ST., MARION, OHIO. *Send for Catalog*

**HUBER**  
4 CYL. MOTOR ROLLER



**Let the ERIE  
Roll It!**

You save hand tamping costs when you use the ERIE Roller. Roll right up to curbs, headers, man-holes, and around the curves—

The ERIE turns in a shorter radius, steers more easily and has better clearance.

Write for Bulletin "M".

Erie Machine Shops  
Erie, Pa.

**ERIE ROLLERS**  
GAS AND STEAM SAME HIGH QUALITY



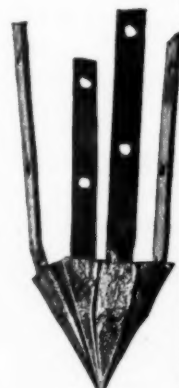
**PILE  
SHOES**

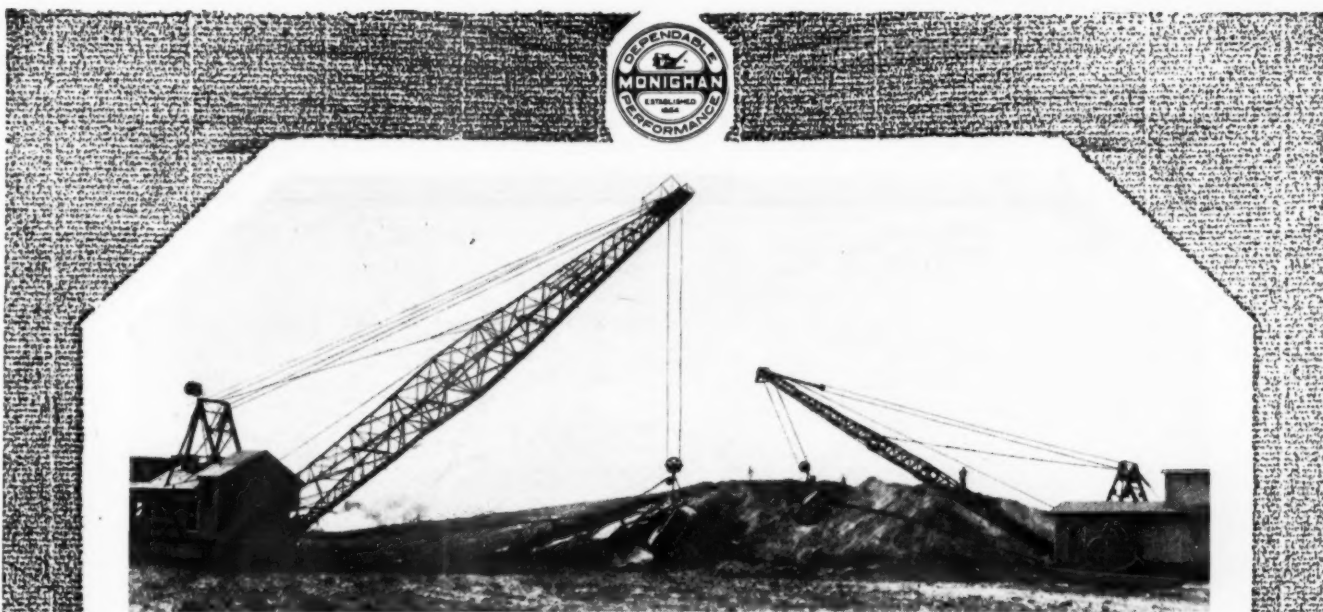
IN STOCK FOR  
QUICK SHIPMENT

**Jos. A. Janney, Jr.**  
Successor to  
Janney - Steinmetz  
& Co.

1421 Chestnut St.  
Philadelphia, Pa.

30 Church St.  
New York City





*Two Monighan Walkers working in tandem on Arkansas River Section of Mississippi Flood Control Project.*

## TEAM WORK

The levee being built here is 30 or more feet high and involves the placement of 10,000 cubic yards of fill per 100 ft. station.

The small machine, shown in the picture, is used for digging out the shallow part of the borrow pit in front of the berm and for placing and spreading the material into the riverside toe of the levee. It also moves inside the levee line, digs the key ditch, spreads the material deposited by the large machine and finishes the levee to grade.

By this method of operation, the large machine is constantly used for digging and depositing dirt into the levee section without any of the delays that are incident to the spreading and finishing to grade.

This efficient method of building embankments is possible because of the unmatched mobility of Monighan Walkers. They step off directly across or at any angle with the line of the work, with the same facility that they parallel or follow it.

**MONIGHAN MANUFACTURING CORPORATION**

937 N. Kilpatrick Ave.

Chicago, Ill.

# MONIGHAN

# Classified Reference Index for Buyers

## ABRASIVE MATERIALS.

Carborundum Co., Niagara Falls, N. Y.

## ACCOUNTANTS (Cert. and Cost.)

Black & Co., Baltimore, Md.  
Ernst & Ernst, New York, N. Y.  
Hollowell Gorham & Co., Greensboro, N. C.  
Le Baron, E. T., Jacksonville, Fla.

## AERIAL MAPS AND SURVEYS.

Airmap Corp. of Amer., Brooklyn, N. Y.  
Lacey & Co., Jas. D., New York, N. Y.

## AIR COMPRESSORS (Stationary and Portable.)

Chicago Pneumatic Tool Co., New York.  
De Laval Steam Turbine Co., Trenton, N. J.  
General Electric Co., Schenectady, N. Y.  
Ingersoll-Rand Co., New York, N. Y.  
Nove Engine Co., Lansing, Mich.  
O. K. Clutch & Mch. Co., Columbus, Pa.  
Quincy Compressor Co., Quincy, Ill.  
Sullivan Machinery Co., Chicago, Ill.  
Westinghouse Traction Brake Co., Wheeling, Pa.

## AIR CONDITIONING SYSTEMS.

Skinner Bros. Mfg. Co., St. Louis, Mo.

## AIRHEATERS.

Babcock & Wilcox Co., New York

## AIRPORTS.

Bhav Co., Russell B., St. Louis, Mo.

## ALUMINUM BRONZE POWDER.

Aluminum Co. of Amer., Pittsburgh.

## AMMONIA Valves and Fittings.

Vogt Mch. Co., Henry, Louisville, Ky.

## ANGLE IRON-WORKING MACHINERY.

Whitney Metal Tool Co., Rockford, Ill.

## APPRAISERS.

Ballinger Co., Philadelphia, Pa.  
Conard & Bunby, Burlington, N. J.  
Main, Inc., Chas. T., Boston, Mass.

## ARCHITECTS.

Ballinger Co., Philadelphia, Pa.  
Bond, Geo. Harwell, Atlanta, Ga.  
Boney, Leslie N., Wilmington, N. C.  
Chase, Wm., J. J., Atlanta.  
Lindley, Claude H., Jackson, Miss.  
Main, Inc., Chas. T., Boston, Mass.  
Milburn, Helster & Co., Wash., D. C.  
Moyer Co., Tilghman, Allentown, Pa.  
Simmons, Inc. & Associates, B. Stanley, Washington, D. C.  
Freacher & Co., Inc., G. Lloyd, Atlanta.  
Shirine & Co., J. E., Greenville, S. C.  
Wheeler, Walter H., Minneapolis, Minn.  
Widmer Engineering Co., St. Louis, Mo.

—(Golf Course, Landscape.)

Draper, E. S., Charlotte, N. C.  
Spoon & Lewis, Greensboro, N. C.

## ARCHITECTS' SUPPLIES.

Weber Co., Inc., F., Philadelphia, Pa.

## ARCHITECTURAL BRONZE.

Chase Brass & Copper Co., Waterbury, Conn.

## —Iron Work.

Dietrich Brothers, Baltimore, Md.  
Virginia Bridge & Iron Co., Roanoke, Va.

## ASH Removal Systems (Gates, Hoppers, Quenchers, etc.)

Allen-Sherman-Hoff Co., Phila., Pa.

## —Sluicing Systems.

Allen-Sherman-Hoff Co., Phila., Pa.

## —Storage Tanks (Cast Iron.)

Allen-Sherman-Hoff Co., Phila., Pa.

## ASPHALT.

Gulf Refining Co., Pittsburgh, Pa.

## —Filler.

American Limestone Co., Knoxville, Tenn.

## AUDITORS.

Black & Co., Baltimore, Md.  
Ernst & Ernst, New York, N. Y.  
Hollowell Gorham & Co., Greensboro, N. C.  
Le Baron, E. T., Jacksonville, Fla.

## BABBITT METAL.

Ryerson & Sons, Inc., Jos. T., St. Louis and New York.

## BACKFILLERS.

Austin Machinery Corp., Muskegon, Mich.  
Harnischfeger Corp., Milwaukee, Wis.  
National Equipment Corp. (Insley, Parsons), Milwaukee, Wis.

## BALLAST (Railroad.)

American Limestone Co., Knoxville, Tenn.

## BANKERS and BROKERS.

Provident Savings Bank & Trust Co., Cincinnati, Ohio.  
Taylor, Wilson & Co., Inc., Cincinnati, Ohio.

## BANKS and TRUST COMPANIES.

Baltimore Commercial Bank, Balto., Md.  
Bank of Alabama, The, Ensley, Ala.  
Bank of New York & Trust Co., N. Y.  
First and Merchants National Bank, Richmond, Va.  
Maryland Trust Co., Baltimore, Md.  
Mercantile Trust Co., Baltimore, Md.

## BARGES (Steel.)

American Bridge Co., New York, N. Y.  
McClintic-Marshall Co., Pittsburgh, Pa.

## BARB (Steel, Rounds, Flats, Hexagon and Squares.)

Carnegie Steel Co., Pittsburgh, Pa.  
Conners Steel Co., Birmingham, Ala.  
Gulf States Steel Co., Birmingham, Ala.  
Knoxville Iron Co., Knoxville, Tenn.  
Republic Steel Corp., Youngstown, Ohio.  
Ryerson & Sons, Inc., Jos. T., St. Louis, and New York.  
Sweet's Steel Corp., Williamsport, Pa.  
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.  
Timken Roller Bearing Co., Canton, Ohio.  
Virginia Bridge & Iron Co., Roanoke, Va.  
Youngtown Sheet & Tube Co., Youngtown, Ohio.

## BATTERIES (Storage.)

Electric Storage Battery Co., Phila., Pa.

## BEAMS, CHANNELS, ANGLES.

Belmont Iron Works, Philadelphia, Pa.  
Carnegie Steel Co., Pittsburgh, Pa.  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.  
Virginia Bridge & Iron Co., Roanoke, Va.

## BEARINGS (Anti-friction.)

Hyatt Roller Bearing Co., Newark, N. J.  
Timken Roller Bearing Co., Canton, Ohio.

## —(Line Shaft.)

Wood's Sons Co., T. B., Chambersburg, Pa.

## —(Roller.)

Hyatt Roller Bearing Co., Newark, N. J.  
Timken Roller Bearing Co., Canton, Ohio.

## BELT (Chain.)

Diamond Chain & Mfg. Co., Indianapolis.  
Morris Chain Co., Ithaca, N. Y.

## —(Leather, Canvas, Rubber.)

Charlotte Leather Belting Co., Charlotte, N. C.  
Republic Rubber Co., Youngstown, Ohio.

## —Dressing.

Dixon Crucible Co., Jos., Jersey City, N. J.

## —Conveyors.

Barber-Greene Co., Aurora, Ill.

## BENCH LEGS.

Angle Steel Stool Co., Plainwell, Mich.

## —Drawers (Steel.)

Angle Steel Stool Co., Plainwell, Mich.

## BENCHES AND TABLES.

(Steel.)  
Angle Steel Stool Co., Plainwell, Mich.

## BILLETS (Basic Open Hearth.)

Gulf States Steel Co., Birmingham, Ala.  
Republic Steel Corp., Youngstown, Ohio.  
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

## BINS (Drill and Reamer.)

Angle Steel Stool Co., Plainwell, Mich.

## —(Steel Loading.)

Blaw-Knox Co., Pittsburgh, Pa.

## BLASTING POWDER and Accessories.

De Pont de Nemours & Co., E. I., Wilmington, Del.  
Hercules Powder Co., Inc., Wilmington, Del.

## BLINDS (Venetian and Awning.)

Blind Corp., The J. G., New York.

## BLOCKS (Chain.)

Harrington Co., The, Philadelphia, Pa.

## —TACKLE for Wire and Manila Rope.

Patterson Co., W. W., Pittsburgh.

## BLOWERS and Exhaust Fans.

National Blow Pipe & Mfg. Co., Ltd., New Orleans, La.

## BLOW PIPE SYSTEMS.

National Blow Pipe & Mfg. Co., Ltd., New Orleans, La.  
Skinner Bros. Mfg. Co., St. Louis, Mo.

## BOILERS (New.)

Babcock & Wilcox Co., The, New York.  
Charleston Dry Dock & Machine Co., Charleston, S. C.  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Cole Mfg. Co., R. D., Newnan, Ga.  
Combustion Engr. Corp., New York, N. Y.  
Hedges Walsh Weldner Co., Chattanooga, Tenn.  
Lombard Iron Works & Supply Co., Augusta, Ga.  
Oil City Boiler Works, Oil City, Pa.  
Schofield's Sons Co., J. S., Mason, Ga.  
Titusville Iron Works Co., Titusville, Pa.  
Vogt Mch. Co., Henry, Louisville, Ky.

## —(Old.)

Babcock & Wilcox Co., New York

## —(Stoker Unit.)

Oil City Boiler Works, Oil City, Pa.

## —(Used.)

Delta Equipment Co., Philadelphia, Pa.  
O'Brien Machinery Co., Philadelphia, Pa.  
Randle Machinery Co., The, Cincinnati, O.  
Zelnicke Supply Co., W. A., St. Louis.

## BOILER SETTINGS.

Babcock & Wilcox Co., New York  
Harrison-Walker Refractories Co., Pittsburg.

## —Tubes.

Babcock & Wilcox Co., New York  
Boiler Tube Co. of America, Pittsburgh.  
National Tube Co., Pittsburgh, Pa.  
Ryerson & Sons, Inc., Jos. T., St. Louis and New York.

## —Tubes (Charcoal, Iron.)

Reading Iron Co., Reading, Pa.

## BOLTS, Rivets, Studs, Washers.

Bethlehem Steel Co., Bethlehem, Pa.  
Progressive Mfg. Co., Torrington, Conn.  
Republic Steel Corp., Youngstown, Ohio.  
Russell, Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.  
Ryerson & Sons, Inc., Jos. T., St. Louis and New York.  
Virginia Bridge & Iron Co., Roanoke, Va.

## —(Track.)

Sweet's Steel Co., Williamsport, Pa.

## BOND BUYERS.

Garraway & Co., S. G., Chicago.  
Hansett Bond Co., Inc., The, Chicago.  
Law & Co., A. M., Springfield, S. C.  
Mercantile Trust Co., Baltimore, Md.  
Nuveen & Co., John, Chicago, Ill.

## Provident Savings Bank and Trust Co., Cincinnati, Ohio.

Taylor, Wilson & Co., Inc., Cincinnati, Ohio.

## BORING (Core.)

Mott Core Drilling Co., Huntington, W. Va.  
Pennsylvania Drilling Co., Pittsburgh, Pa.  
Southern Drilling Co., Saltville, Va.  
Sprague & Henwood, Inc., Scranton, Pa.

## BOXES (Paper.)

Old Dominion Box Co., Lynchburg, Va.

## BRASS GOODS.

Chase Brass & Copper Co., Waterbury, Conn.  
Copper and Brass Research Assn., New York.  
Mueller Co., Decatur, Ill.

## BRICK (Common Building.)

Friend & Co., Inc., Petersburg, Va.

## —(Face.)

Alabama Clay Prod. Co., Birmingham.

## —(Fire.)

Alabama Clay Prod. Co., Birmingham.  
Cambria Clay Products Co., Blackfork, O.  
Dee Co., Wm. E., Oak Hill, Ohio.  
Taylor Sons Co., Charles, Cincinnati.

## —(Vitrified, Paving.)

National Paving Brick Mfrs. Assn., Washington, D. C.

## —and Clayworking Machy.

Steel & Sons, J. C., Statesville, N. C.

## BRIDGE (Operating Machinery.)

Earle Gear & Machine Co., Phila., Pa.

## —Timber.

Amer. Creosoting Co., Louisville, Ky.  
Industrial Lumber Co., Elizabeth, La.  
Kirby Lumber Co., Houston, Texas.

## BRIDGES (Concrete.)

Atlantic Bridge Co., Greensboro, N. C.

## —(Creosoted Wood.)

Atlantic Bridge Co., Greensboro, N. C.

## —(Steel.)

American Bridge Co., New York, N. Y.  
Atlantic Bridge Co., Greensboro, N. C.  
Belmont Iron Works, Philadelphia, Pa.  
Bristol Steel & Iron Works, Inc., Bristol, Va.  
Champion Bridge Co., Wilmington, O.  
Converse Bridge & Steel Co., Chattanooga, Tenn.  
Ingalls Iron Works Co., Birmingham, Ala.  
McClintic-Marshall Co., Pittsburgh, Pa.  
Nashville Bridge Co., Nashville, Tenn.  
Richmond Struc. Steel Co., Richmond, Va.  
Virginia Bridge & Iron Co., Roanoke, Va.

## BRONZE (Architectural.)

Heath Company, J. S., Waukegan, Ill.

## —(Machine.)

Moccasin Brushing Co., Chattanooga, Tenn.

## BUBBLERS.

Rundle-Spence Mfg. Co., Milwaukee, Wis.

## BUCKETS (Clam Shell.)

Blaw-Knox Co., Pittsburgh, Pa.  
Hayward Co., The, New York, N. Y.  
Industrial Brownhoist Corp., Cleveland, O.  
Kiesler Co., Jos. F., Chicago, Ill.  
Owen Bucket Co., The, Cleveland, Ohio.

## —(Dredging, Excavating, Sewer, etc.)

Hayward Co., The, New York, N. Y.  
Monaghan Mfg. Corp., Chicago, Ill.  
Kiesler Co., Jos. F., Chicago, Ill.  
Owen Bucket Co., The, Cleveland, Ohio.  
Stuehner Iron Works, G. L., Long Island City, N. Y.

## —(Elevator.)

Hendrick Mfg. Co., Carbondale, Pa.  
Webster & Weller Mfg. Companies, Chicago, Ill.

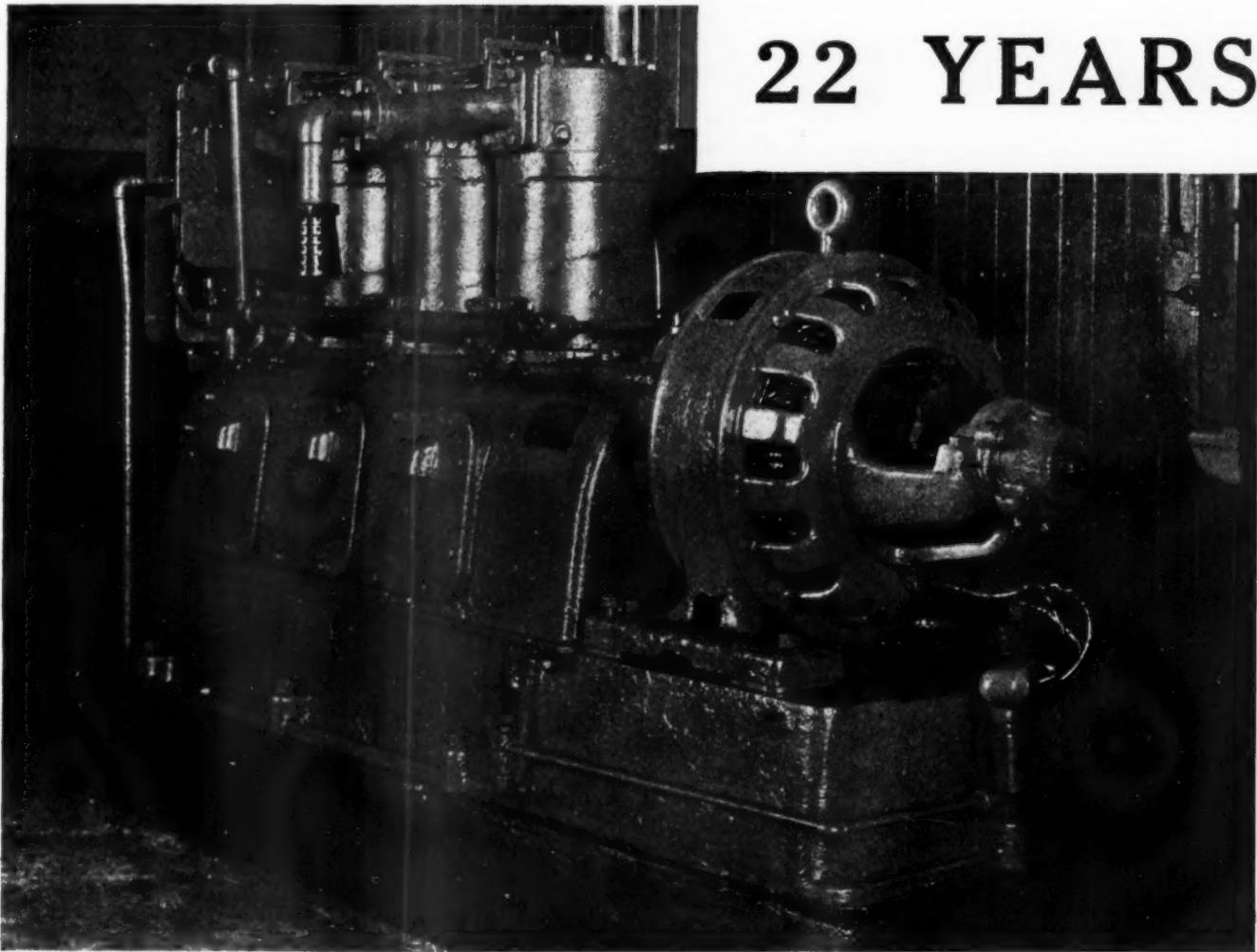
## —(Orange Peel.)

Hayward Co., The, New York, N. Y.

## —(Ore Handling.)

Hayward Co., The, New York, N. Y.  
Owen Bucket Co., The, Cleveland, Ohio.  
Stuehner Iron Works, G. L., Long Island City, N. Y.

# *A veteran still in service after* **22 YEARS**



The illustration shows a type 3VS-11 compressor, 100 cu. ft. installed in 1908 and used continuously for car charging, cleaning, and operation of pneumatic tools . . . Westinghouse-National air compressors are made in many types and sizes ranging from 2½ to 700 cu. ft. displacement. Where dependability is vital they are performing with distinction—"Quality Machines for Quality Service."

**WESTINGHOUSE-NATIONAL** air compressors are noted for their long trouble-free service . . . Leading manufacturers, by hundreds of outstanding cases, have proved they are unexcelled for reliable and economical operation . . . The machine illustrated was installed by a well-known eastern railroad 22 years ago. Since then additional compressors of similar type have been purchased for other parts of the system, on an average of one each year . . . All of the 23 machines are "running true to form."

**Westinghouse Traction Brake Company**

General Office and Works: Wilmerding, Pa.

## **WESTINGHOUSE-NATIONAL** *Air Compressors*

**BUILDERS and Contractors.**  
Barstow & Co., W. R., Reading, Pa.  
Cowper Co., Inc., The John W., Richmond, Va.  
Moyer Co., Tilghman, Allentown, Pa.  
Stone & Webster, Inc., Boston, Mass.  
Thompson & Bros., T. C., Charlotte, N. C.  
White Engineering Corp., J. G., New York.

**BUILDINGS (Industrial.)**  
Belmont Iron Works, Philadelphia, Pa.  
Blaw-Knox Co., Pittsburgh, Pa.  
Braden Steel Corp., Tulsa, Okla.  
Butler Mfg. Co., Kansas City, Mo.  
McClintic-Marshall Co., Pittsburgh, Pa.  
Nashville Bridge Co., Nashville, Tenn.  
Virginia Bridge & Iron Co., Roanoke, Va.

**—(Portable Sheet Metal.)**  
Braden Steel Corp., Tulsa, Okla.  
Butler Mfg. Co., Kansas City, Mo.

**BULKHEADS.**  
Shore-Line Builders, Inc., Jacksonville, Fla.  
Snare Corp., Frederick, New York, N. Y.

**BULLDOZERS.**  
Trackson Co., Milwaukee, Wis.

**BUSHINGS (Brass and Bronze.)**  
Moccasin Bushing Co., Chattanooga, Tenn.

**BUSINESS METHODS.**  
Ernst & Ernst, New York, N. Y.

**CABINETS (Steel.)**  
Angle Steel Stool Co., Plainwell, Mich.

**CABLES (Stud Link.)**  
Woodhouse Chain Works, Trenton, N. J.  
**—and Wire (Electric.)**  
American Steel & Wire Co., Balto., Md.  
Okonite Co., New York, N. Y.  
Roebling's Sons Co., John A., Trenton, N. J.  
Western Electric Co., New York City.

**CABLEWAYS (Overhead Suspension.)**  
Broderick & Bascom Rope Co., St. Louis  
Lidgerwood Mfg. Co., Elizabeth, N. J.  
Sauerman Bros., Chicago, Ill.

**CALCIUM CHLORIDE.**  
Grassell Chemical Co., Inc., Birmingham, Ala.

**CAN and Box-Making Machinery (Tin.)**  
Bliss Co., E. W., Brooklyn, N. Y.

**CAR Loaders and Unloaders.**  
Barber-Greene Co., Aurora, Ill.

**—Pullers.**  
Webster & Weller Mfg. Companies, Chicago, Ill.

**CARS (Dump, Industrial, Logging and Mine.)**  
Atlas Car & Mfg. Co., The, Cleveland, O.  
Easton Car & Construction Co., Easton, Pa.  
Koppel Ind. Car & Equip. Co., Koppel, Pa.  
Southern Iron & Equipment Co., Atlanta.

**—Steps (Safety.)**  
Irving Iron Works Co., Long Island City, N. Y.

**CASTINGS (Brass, Bronze and Aluminum.)**  
Moccasin Bushing Co., Chattanooga, Tenn.  
Mountain States Steel Foundries, Parkersburg, W. Va.

**—(Chilled Iron.)**  
Fuller Lehigh Co., Fullerton, Penna.

**—(Gray Iron.)**  
Fuller Lehigh Co., Fullerton, Penna.  
Glamorgan Pipe & Fdry. Co., Lynchburg, Va.

**National Cast Iron Pipe Co., Birmingham, Ala.**  
Roanoke Iron & Bridge Works, Inc., Roanoke, Va.

**Salem Fdry. & Mach. Wks., Salem, Va.**  
U. S. Pipe & Foundry Co., Burlington, N. J.

**—(Malleable Iron and Steel.)**  
Timken Roller Bearing Co., Canton, O.

**—(Semi-Steel.)**  
Salem Fdry. & Machine Works, Salem, Va.

**—(Steel.)**  
Bethlehem Steel Co., Bethlehem, Pa.  
Crucible Steel Casting Co., Lansdowne, Delaware Co., Pa.  
Deemer Steel Casting Co., New Castle, Del.  
Lunkensheimer Co., Cincinnati, Ohio.

**CEILINGS (Metal.)**  
Milcor Steel Co., Milwaukee, Wis.

**CEMENT (High Temperature.)**  
Harrison Walker Refractories Co., Pittsburg.  
North American Refractories Co., Cleveland, Ohio.

**—(Portland.)**  
Alpha Portland Cement Corp., Birmingham, Ala.  
Lehigh Portland Cement Co., New York.  
Louisville Cement Co., Louisville, Ky.  
Portland Cement Assn., Chicago, Ill.

**—Guns.**  
Cement-Gun Co., Inc., Allentown, Pa.

**—Machinery.**  
Allis-Chalmers Mfg. Co., Milwaukee, Wis.

**CHAIN BLOCKS (See Blocks, Chain.)**

**CHAINS (Dredge, Quarry, Steam Shovel.)**  
Knoxville Iron Co., Knoxville, Tenn.  
Woodhouse Chain Works, Trenton, N. J.

**—(High Speed Roller.)**  
Diamond Chain & Mfg. Co., Indianapolis.

**—(Silent Drive.)**  
Diamond Chain & Mfg. Co., Indianapolis.  
Morse Chain Co., Itasca, N. Y.

**—(Sprocket.)**  
Chain Belt Co., Milwaukee, Wis.  
Diamond Chain & Mfg. Co., Indianapolis.  
Morse Chain Co., Itasca, N. Y.

**—(Welded.)**  
Woodhouse Chain Works, Trenton, N. J.

**CHAIRS (Opera and Theatre.)**  
Andrews Co., A. H., Chicago, Ill.

**—and Stools (Steel.)**  
Angle Steel Stool Co., Plainwell, Mich.

**CHEMICALS.**  
Davison Chemical Co., Baltimore, Md.  
Grassell Chemical Co., Inc., Birmingham, Ala.

**CHEMISTS, CHEMICAL ENGINEERS (Analytical.)**

Barrow-Agee Laboratories, Memphis, Tenn.  
Flood & Co., Walter H., Chicago, Ill.  
Froehling & Robertson, Inc., Richmond, Va.  
Hunt Co., Robert W., Chicago, Ill.  
Meigs, Bassett & Slaughter, Phila., Pa.  
Picard Laboratories, The, Birmingham, Ala.  
Pittsburgh Testing Laboratories, Pittsburgh, Pa.  
Southwestern Laboratories, Fort Worth, Texas.  
Stillman & Van Stien, New York.  
Willey & Co., Inc., Baltimore, Md.

**—(Consulting, Paper Industry.)**  
Froehling & Robertson, Inc., Richmond, Va.

**CHIMNEYS (Concrete.)**  
Rust Engineering Co., Birmingham, Ala.

**—(Radial Brick.)**  
Rust Engineering Co., Birmingham, Ala.

**CHLORIDE ACCUMULATOR.**  
Electric Storage Battery Co., Phila., Pa.

**CHLORINATORS.**  
Rees, S. P., Atlanta.

**CIRCUIT BREAKERS.**  
I. T. E. Circuit Breaker Co., Phila., Pa.  
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.

**CITY AND TOWN PLANNING.**  
Draper, E. S., Charlotte, N. C.  
Ludlow Engineers, Winston-Salem, N. C.

**CLOCKS (For all purposes.)**  
Kaiser Clock Co., L. E., Baltimore, Md.

**—(Watchman's Portable.)**  
Davis-Paradis Watchman's Clock Corp., New York, N. Y.  
Kaiser Clock Co., L. E., Baltimore, Md.

**CLUTCHES (Friction.)**  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Schultz & Son, A. L., Chicago, Ill.  
Wood's Sons Co., T. B., Chambersburg, Pa.

**COAL (Bituminous.)**  
Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.  
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

**—and Ash-Handling Mchry.**  
Allen-Sherman-Hoff Co., Phila., Pa.  
Chain Belt Co., Milwaukee, Wis.  
Hayward Co., The, New York, N. Y.  
Industrial Brownhoist Corp., Cleveland, O.  
Northwest Engineering Co., Chicago.  
Webster & Weller Mfg. Companies, Chicago, Ill.

**—Bunkers (Cast Iron.)**  
Allen-Sherman-Hoff Co., Phila., Pa.

**—Tipples.**  
American Bridge Co., New York, N. Y.  
Virginia Bridge & Iron Co., Roanoke, Va.

**COCKS (Service.)**  
Merco Nordstrom Valve Co., San Francisco, Calif.

**COKE.**  
Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.  
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

**COLUMNS (Cast Iron.)**  
U. S. Pipe & Foundry Co., Burlington, N. J.

**COMPRESSORS.**  
Union Steam Pump Co., Battle Creek, Mich.

**—(Gasoline Extraction.)**  
Sullivan Machinery Co., Chicago, Ill.

**CONCRETE (Block Machinery.)**  
Blystone Mfg. Co., Cambridge Springs, Pa.

**—Construction (Reinforced.)**  
Cement-Gun Co., Inc., Allentown, Pa.  
Cement Gun Construction Co., Chicago.  
Rust Engineering Co., Birmingham, Ala.

**—Floor Slabs.**  
American Cement Tile Mfg. Co., Pittsburgh, Pa.

**—Information Only.**  
Portland Cement Assn., Chicago, Ill.

**—Mixers.**  
Blystone Mfg. Co., Cambridge Springs, Pa.  
Chain Belt Co., Milwaukee, Wis.  
Dunning & Bouchert Press Co., Inc., Syracuse, N. Y.  
Jaeger Machine Co., Columbus, Ohio.  
Lansing Co., Lansing, Mich.

**—Pipe Machinery (See Pipe Machinery, Concrete.)**

**—Placing Equipment.**  
National Equipment Corp. (Insley Division), Milwaukee, Wis.

**—Road Curing.**  
McEverlast, Inc., Los Angeles, Cal.

**—Roofing Tile.**  
American Cement Tile Mfg. Co., Pittsburgh, Pa.

**CONDENSERS.**  
Chicago Pneumatic Tool Co., New York.  
Ingersoll-Rand Co., New York, N. Y.  
Manistee Iron Works Co., Manistee, Mich.  
Union Steam Pump Co., Battle Creek, Mich.  
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.

**CONDUITS (Electric, Interior, Steel.)**  
Western Electric Co., New York City.  
Youngstown Sheet & Tube Co., Youngstown, Ohio.

**CONTRACTORS (Bridge)**  
Kansas City Bridge Co., Kansas City, Mo.  
Snare Corp., Frederick, New York.

**—(Drainage and Dredging.)**  
Arundel Corp., The, Baltimore, Md.  
Atlantic Gulf and Pacific Co., New York.

**—(Electrical.)**  
Walker Electrical Co., Atlanta, Ga.  
Warner Service Co., Knoxville, Tenn.  
Webb Electric Co., Anderson, S. C.

**—(Foundations and Dams.)**  
Calligan & Co., A. H., Richmond, Va.  
Snare Corp., Frederick, New York, N. Y.

**—(General.)**  
Angle-Blackford Co., Greensboro, N. C.  
Blair, Algernon, Montgomery, Ala.  
Charleston Constructors, Inc., Charleston, S. C.  
Cornell-Young Co., Inc., Macon, Ga.

Cowper Co., Inc., The John W., Richmond, Va.  
Fiske-Carter Constr. Co., Greenville, S. C.  
Gridley Constr. Co., Lee A., Knoxville, Tenn.  
Saville, Inc., Allen J., Richmond, Va.  
Snare Corp., Frederick, New York, N. Y.  
Stone & Webster, Inc., Boston, Mass.  
Thompson & Bros., T. C., Charlotte, N. C.  
Tucker & Laxton, Charlotte, N. C.  
White Engineering Corp., J. G., New York.

**—(Industrial Buildings.)**  
Angle-Blackford Co., Greensboro, N. C.  
Barstow & Co., W. S., Reading, Pa.  
Blair, Algernon, Montgomery, Ala.  
Cowper Co., Inc., The John W., Richmond, Va.  
Fiske-Carter Constr. Co., Greenville, S. C.  
Snare Corp., Frederick, New York, N. Y.  
Stone & Webster, Inc., Boston, Mass.  
Thompson & Bros., T. C., Charlotte, N. C.  
Tucker & Laxton, Charlotte, N. C.  
White Engineering Corp., J. G., New York.

**—Mill Village.**  
Hornbuckle Contracting Co., Atlanta, Ga.

**—(Plastering.)**  
Gomez & Co., P. L., Atlanta, Ga.  
Jennings & Co., Floyd, Atlanta, Ga.

**—(Power Piping.)**  
Poe Piping & Heating Co., Greenville, S. C.

**—(Power Plants.)**  
Snare Corp., Frederick, New York, N. Y.

**—(Railroad.)**  
Calligan & Co., A. H., Richmond, Va.  
Cornell-Young Co., Inc., Macon, Ga.

**—(Reinforced Concrete.)**  
Blair, Algernon, Montgomery, Ala.  
Cement Gun Construction Co., Chicago.  
Gunite Const. & Constr. Co., Kansas City.  
Tucker & Laxton, Charlotte, N. C.

**—(Road and Street Paving.)**  
Fiske-Carter Constr. Co., Greenville, S. C.  
Gridley Constr. Co., Lee A., Knoxville, Tenn.

**Hornbuckle Contracting Co., Atlanta, Ga.**  
McCrory Co., The J. B., Atlanta, Ga.

**—(Rust Proofing.)**  
Dixie Electro Plating Co., Houston, Tex.

**—(Sewerage and Waterworks.)**  
Gridley Constr. Co., Lee A., Knoxville, Tenn.

**Hardaway Contracting Co., Columbus, Ga.**  
Hornbuckle Contracting Co., Atlanta, Ga.  
McCrory Co., The J. B., Atlanta, Ga.  
Snare Corp., Frederick, New York, N. Y.  
Tucker & Laxton, Charlotte, N. C.

**—(Sprinkler System.)**  
Poe Piping & Heating Co., Greenville, S. C.

**—(Swimming Pool.)**  
Rees, S. P., Atlanta, Ga.

**—(Water-Works.)**  
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

**—Machinery and Supplies.**  
(New.)  
Bay City Shovel, Inc., Bay City, Mich.  
Weller & Co., Birmingham, Ala.  
W-K-M Co., Inc., Houston, Texas.

**—Machinery and Supplies.**  
(Used.)

Christian & Co., J. B., Houston, Tex.  
Cohen, Chas. F., Lima, O.  
Equip. Sales & Rentals Co., Pittsburgh.  
Gulson, Harry P., New York, N. Y.  
Johnson & Hoehler, Fernwood, Pa.  
Marine Metal & Supply Co., New York.

**CONTRACT WORK WANTED.**  
(See following classifications:)

**Boiler and Tank Works.**

**Castings.**

**Forgings.**

**Foundry and Machine Shops.**

**Machinery (Special.)**

**Ornamental Iron Work.**

**Patterns.**

**Sheet Metal Work.**

**Structural Steel and Iron.**

**Welding Plants.**

**CONVEYING AND ELEVATING MACHINERY.**

Barber-Greene Co., Aurora, Ill.  
Chain Belt Co., Milwaukee, Wis.  
McLanahan-Stone Machine Co., Hollidaysburg, Pa.

Universal Crusher Co., Cedar Rapids, Iowa.  
Webster & Weller Mfg. Companies, Chicago, Ill.

**CONVEYORS (Portable, Power-Driven.)**  
Clark Tractor Co., Battle Creek, Mich.

**CORRESPONDENCE SCHOOLS.**  
International Correspondence Schools, Scranton, Pa.

**COST SERVICE.**

Le Baron, E. T., Jacksonville, Fla.

**COTTON GIN MACHINERY.**

Continental Gin Co., Birmingham, Ala.

**—Mill Machinery.**

Southern Spindle &amp; Flyer Co., Inc., Charlotte, N. C.

**COUNTING APPARATUS.**

Feeder-Rout, Inc., Hartford, Conn.

**COUPLINGS.**

Goldens' Fdy. &amp; Mach. Co., Columbus, Ga.

**—(Shaft.)**

Wood's Sons Co., T. B., Chambersburg, Pa.

**CRANES.**Austin Machinery Corp., Muskegon, Mich.  
National Equipment Co. (Insley, Koehering, Parsons), Milwaukee, Wis.  
Northwest Engineering Co., Chicago, Ill.  
Ohio Power Shovel Co., Lima, Ohio.  
The Shovel Co., The Lorain, Ohio.  
Whiting Corp., Harvey, Ill.**—(Cantilever.)**

Whiting Corp., Harvey, Ill.

**—(Crawler.)**Harnischfeger Corp., Milwaukee, Wis.  
Northwest Engineering Co., Chicago, Ill.  
Ohio Power Shovel Co., Lima, Ohio.  
The Shovel Co., The Lorain, Ohio.**—(Crawling Tractor.)**Northwest Engineering Co., Chicago, Ill.  
Ohio Power Shovel Co., Lima, Ohio.  
The Shovel Co., The Lorain, Ohio.**—(Electric Traveling.)**Harnischfeger Corp., Milwaukee, Wis.  
Milwaukee Elec. Crane & Hoist Corp., Milwaukee, Wis.  
Whiting Corp., Harvey, Ill.**—(Full Circle Steam and Electric.)**Austin Machinery Corp., Muskegon, Mich.  
Northwest Engineering Co., Chicago, Ill.  
Ohio Power Shovel Co., Lima, Ohio.  
The Shovel Co., The Lorain, Ohio.**—(Gasoline.)**Harnischfeger Corp., Milwaukee, Wis.  
Industrial Brownhoist Corp., Cleveland, O.  
Northwest Engineering Co., Chicago, Ill.  
Ohio Power Shovel Co., Lima, Ohio.  
The Shovel Co., The Lorain, Ohio.**—(Jib.)**

Whiting Corp., Harvey, Ill.

**—(Locomotive.)**Bucyrus-Erie Co., Erie, Penna.  
Industrial Brownhoist Corp., Cleveland, O.  
Northwest Engineering Co., Chicago, Ill.  
Ohio Power Shovel Co., Lima, Ohio.  
The Shovel Co., The Lorain, Ohio.**—(Material Handling.)**Bay City Shovels, Inc., Bay City, Mich.  
Industrial Brownhoist Corp., Cleveland, O.  
Northwest Engineering Co., Chicago, Ill.  
Ohio Power Shovel Co., Lima, Ohio.  
The Shovel Co., The Lorain, Ohio.  
Universal Crane Co., Lorain, Ohio.**—(Traveling, Hand Power.)**Harrington Co., The Philadelphia, Pa.  
Whiting Corp., Harvey, Ill.**CRAWLERS (Tractor.)**Middell Co., W. A., Bucyrus, Ohio.  
Trackson Co., Milwaukee, Wis.**CRESOTED MATERIALS.**Amer. Cresote Wks., Inc., New Orleans.  
Delaware Wood Preserving Co., Phila.  
Savannah Creosoting Co., Savannah, Ga.**CRESOTED TIMBER.**Ayer & Lord Tie Co., Chicago, Ill.  
Brown Wood Preserving Co., Louisville, Ky.**CRESOTE OIL.**Amer. Cresote Wks., Inc., New Orleans.  
Ayer & Lord Tie Co., Inc., Chicago.**CRESOTING (Wood Materials.)**Amer. Cresote Wks., Inc., New Orleans.  
Amer. Cresoting Co., Inc., Louisville, Ky.  
Brown Wood Preserving Co., Louisville, Ky.**—(Rolling, Steel and Wood.)**Carolina Wood Preserving Co., Charleston, S. C.  
Delaware Wood Preserving Co., Phila.  
Eppinger & Russell Co., New York, N. Y.  
Gulf States Creos. Co., Hattiesburg, Miss.  
Savannah Creosoting Co., Savannah, Ga.  
Taylor-Colquhoun Co., Spartanburg, S. C.  
Wales Wood-Preserving Co., Norfolk, Va.**CROSS-ARMS (Cresoted.)**Amer. Cresote Wks., Inc., New Orleans.  
Amer. Cresoting Co., Inc., Louisville, Ky.  
Savannah Creosoting Co., Savannah, Ga.**—(Zinc Meta Arsenic Treated.)**

Curtin-Howe Corp., New York, N. Y.

**CROSS-TIES (Cresoted.)**Amer. Cresote Wks., Inc., New Orleans.  
Amer. Cresoting Co., Inc., Louisville, Ky.  
Ayer & Lord Tie Co., Inc., Chicago.**Carolina Wood Preserving Co., Charleston, S. C.**Eppinger & Russell Co., New York, N. Y.  
Savannah Creosoting Co., Savannah, Ga.**Taylor-Colquhoun Co., Spartanburg, S. C.**—(Zinc Meta Arsenic Treated.)  
Curtin-Howe Corp., New York, N. Y.**CRUSHED STONE (Road Concrete and Ballast.)**American Limestone Co., Knoxville, Tenn.  
Boxley & Co., W. W., Roanoke, Va.**CRUSHERS (Coal and Coke.)**

Fuller Lehigh Co., Fullerton, Pa.

**—Rock.**

Universal Crusher Co., Cedar Rapids, Iowa.

**CRUSHING and Pulverizing Machinery.**Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
Day Pulverizer Co., Knoxville, Tenn.  
Fuller Lehigh Co., Fullerton, Pa.  
McLanahan-Stone Machine Co., Hollidaysburg, Pa.  
Raymond Bros. Impact Pulverizer Co., Chicago, Ill.  
Universal Crusher Co., Cedar Rapids, Iowa.  
W-K-M Co., Inc., Houston, Texas.**CULVERT PIPE (Cast Iron.)**Amer. Cast Iron Pipe Co., Birmingham.  
Cast Iron Pipe Research Assn., Chicago.  
U. S. Pipe & Foundry Co., Burlington, N. J.**—(Corrugated Metal.)**American Sheet & Tin Plate Co., Pittsburgh, Pa.  
Armco Culvert Mfrs. Assn., Middletown, O.  
Dixie Culvert & Metal Co., Atlanta, Ga.  
Dixie Culvert Mfg. Co., Little Rock, Ark.  
Louisiana Corr. Culvert Co., Baton Rouge, La.  
Tenn. Metal Culvert Co., Nashville, Tenn.  
Western Metal Mfg. Co., Houston, Texas.**CUTTERS (Wire Rope.)**

Leschen &amp; Sons Rope Co., A., St. Louis.

**CYLINDERS (Compressed Air, Gas.)**Janney, Jr., Jos. A., Phila., Pa.  
National Tube Co., Pittsburgh, Pa.**DERRICKS and Derrick Fittings.**Lidgerwood Mfg. Co., Elizabeth, N. J.  
Sagen Derrick Co., Chicago, Ill.**—(Used.)**

Galer Equipment Corp., New York, N. Y.

**DESKS (School.)**

Andrews Co., A. H., Chicago, Ill.

**—(Steel Factory.)**

Angle Steel Stool Co., Plaiswell, Mich.

**DITCHING MACHINERY.**Barber-Greene Co., Aurora, Ill.  
Bay City Shovels, Inc., Bay City, Mich.  
Harnischfeger Corp., Milwaukee, Wis.  
Hayward Co., The, New York, N. Y.  
Industrial Brownhoist Corp., Cleveland, O.  
Northwest Engineering Co., Chicago, Ill.  
Ohio Power Shovel Co., Lima, Ohio.  
Owen Bucket Co., The, Cleveland, O.**DOORS (Bronze.)**

Michaels Art Bronze Co., Covington, Ky.

**—(Fire.)**Merchant & Evans Co., Philadelphia, Pa.  
Richards-Wilcox Mfg. Co., Aurora, Ill.**—(Fireproof, Air Chamber.)**

Wilson Corp., The J. G., New York.

**—(Kalamine.)**

Moeschl-Edwards Corr. Co., Cincinnati.

**—(Rolling, Steel and Wood.)**Kinneair Mfg. Co., The, Columbus, Ohio.  
Mahon Co., R. C., Detroit, Mich.  
Moeschl-Edwards Corr. Co., Cincinnati.  
Wilson Corp., The J. G., New York.**—(Steel.)**

Detroit Steel Products Co., Detroit, Mich.

**—(Tubular Steel.)**

Bayley Co., Wm., Springfield, O.

**DRAFTSMEN'S SUPPLIES.**

Weber Co., Inc., F., Philadelphia, Pa.

**DRAGLINE EXCAVATORS.**Austin Machinery Corp., Muskegon, Mich.  
Bucyrus-Erie Co., Erie, Penna.  
Harnischfeger Corp., Milwaukee, Wis.  
Monaghan Mfg. Corp., Chicago, Ill.**National Equipment Corp. (Keshring, Insley), Milwaukee, Wis.**Northwest Engineering Co., Chicago, Ill.  
Ohio Power Shovel Co., Lima, Ohio.  
Sauerman Bros., Chicago, Ill.  
The Shovel Co., The Lorain, Ohio.  
Universal Power Shovel Co., Milwaukee, Wis.**DREDGES (Dipper, Elevator, Hydraulic.)**Bay City Shovels, Inc., Bay City, Mich.  
Bucyrus-Erie Co., Erie, Pa.  
Ellicott Machine Corp., Baltimore, Md.  
Morris Machine Wks., Baldwinville, N. Y.**DREDGING (River and Harbor Improvement.)**Arundel Corp., The, Baltimore, Md.  
Atlantic Gulf and Pacific Co., New York.**—Machinery.**American Steel Dredge Co., Fort Wayne, Ind.  
Ellicott Machine Corp., Baltimore, Md.  
Hayward Co., The, New York.**DRILLING CONTRACTORS.**Mott Core Drilling Co., Huntington, W. Va.  
Pennsylvania Drilling Co., Pittsburgh, Pa.  
Southern Drilling Co., Saltville, Va.  
Sprague & Henwood, Inc., Scranton, Pa.**DRILLS (Artesian Well.)**

Virginia Machinery &amp; Well Co., Inc., Richmond, Va.

**—(Electric.)**Chicago Pneumatic Tool Co., New York.  
Sullivan Machy. Co., Chicago.**—(Pneumatic.)**Chicago Pneumatic Tool Co., New York.  
Ingersoll-Rand Co., New York, N. Y.  
Sullivan Machinery Co., Chicago, Ill.**DRINKING FOUNTAINS.**

Rundie-Spence Mfg. Co., Milwaukee, Wis.

**DROP-FORGING MACHINERY.**

Bliss Co., E. W., Brooklyn, N. Y.

**DRYERS (Gravel and Sand.)**

Ripley Fdy. &amp; Mch. Co., Ripley, Ohio.

**DRY KILNS and Equipment.**

Moore Dry Kiln Co., Jacksonville, Fla.

**DRYING MACHINERY.**

American Process Co., New York, N. Y.

**DUMP TRUCK BODIES and HOISTS.**Easton Car & Construction Co., Easton, Pa.  
Lee Trailer & Body Co., Inc., Plymouth, Ind.**DUSTPROOFING (Concrete.)**

Sonnenborn Sons, Inc., L., New York.

**DYESTUFFS.**

Du Pont de Nemours &amp; Co., Inc., E. I., Wilmington, Del.

**DYNAMITE (Industrial and Agricultural.)**Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.  
Hercules Powder Co., Inc., Wilmington, Del.**ECONOMIZERS (Fuel.)**

Babcock &amp; Wilcox Co., New York

**ELECTRICAL Instruments and Supplies.**Adams Electric Co., Frank, St. Louis.  
General Electric Co., Schenectady, N. Y.  
Western Electric Co., New York City.**—Machinery (Generators, Motors, etc., New.)**Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
Elliotte Howard C., Miami, Fla.  
Fairbanks, Morse & Co., Chicago, Ill.  
General Electric Co., Schenectady, N. Y.  
Howell Electric Motors Co., Howell, Mich.  
Rockford Power Machy. Co., Rockford, Ill.  
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.**—Machinery (Generators, Motors, etc., Used.)**Delta Equipment Co., Philadelphia, Pa.  
Electric Service Co., Cincinnati, Ohio.  
Electrical Equip. Co., Raleigh, N. C.  
General Electric Co., Schenectady, N. Y.  
Gregory Electric Co., Chicago.  
Nashville Industrial Corp., Old Hickory, Tenn.  
Nussbaum & Co., V. M., Ft. Wayne, Ind.  
O'Brien Machinery Co., The, Phila., Pa.  
Randle Machinery Co., The, Cincinnati, O.  
Rockford Power Machy. Co., Rockford, Ill.  
Stewart Elec. Co., John A., Cincinnati.**—Machinery Repairing (Motors, Generators, etc.)**Electric Service Co., Cincinnati, Ohio.  
Gregory Electric Co., Chicago.**ELECTRIC LIGHTING.**

General Electric Vapor Lamp Co., Hoboken, N. J.

**ELECTRIC SHOVELS (See Shovels.)****ELEVATOR Cables.**

Leschen &amp; Sons Rope Co., A., St. Louis.

**—(Equalizers.)**

Evans Elevator Equalizer Co., Bedford, Ind.

**ELEVATORS (Electric.)**American Elevator & Machine Co., Inc., Louisville, Ky.  
Millner Co., St. Louis, Mo.**—(Hand and Belt Power.)**American Elevator & Machine Co., Inc., Louisville, Ky.  
Millner Co., St. Louis, Mo.**—(Hydraulic.)**

American Elevator &amp; Machine Co., Inc., Louisville, Ky.

**—(Portable.)**

O. K. Clutch &amp; Machy. Co., Columbia, Pa.

**ENGINEERS (Airports.)**MacElwee & Crandall, Inc., Cambridge, Mass.  
Shaw Co., Russell B., St. Louis, Mo.**—(Appraisal.)**Ballinger Co., Philadelphia, Pa.  
Batter & Kipp, Inc., Chicago, Ill.  
Fay, Spofford & Thorndike, Boston, Mass.  
Ford, Bacon & Davis, Inc., New York.  
Harrison, Wm. Henry, Washington, D. C.  
Lockwood Greene Engrs., Inc., New York City.**Ludlow Engineers, Winston-Salem, N. C.**Main, Inc., Chas. T., Boston, Mass.  
Sanderson & Porter, New York, N. Y.  
Wadleigh & Bailey, Washington, D. C.  
White Engineering Corp., J. G., New York.**Wiedeman and Singleton, Inc., Atlanta.**

Williamson, Lee H., Charlottesville, Va.

**—(Aviation.)**

Shaw Co., Russell B., St. Louis, Mo.

**—(Bridge.)**Atlantic Bridge Co., Greensboro, N. C.  
Billingsley, James W., New Orleans, La.  
Fay, Spofford & Thorndike, Boston, Mass.  
Freeland, Roberts & Co., Nashville, Tenn.  
Gardner & Howe, Memphis, Tenn.  
Greiner & Co., J. E., Baltimore, Md.  
Hardaway Contracting Co., Columbus, Ga.  
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.  
Howerton Engineering Co., Asheville, N. C.  
Steel & Leiby, Knoxville, Tenn.  
Turner, C. A. P., Minneapolis, Minn.  
Virginia Bridge & Iron Co., Roanoke, Va.  
Wheeler, Walter H., Minneapolis, Minn.**—(Chemical.)**Barrow-Agee Laboratories, Memphis, Tenn.  
Dow & Smith, New York, N. Y.  
Flood & Co. Walter H., Chicago, Ill.  
Picard Laboratories, Birmingham, Ala.  
Pittsburgh Testing Laboratories, Pittsburgh, Pa.**—(Civil.)**Airmap Corp. of Amer., Brooklyn, N. Y.  
Batter & Kipp, Inc., Chicago, Ill.  
Charlton & Davis, Ft. Lauderdale, Fla.  
Fuller & McClintock, New York, N. Y.  
Gardner & Howe, Memphis, Tenn.  
Greiner & Co., J. E., Baltimore, Md.  
Harrub Engr. Co., C. N., Nashville, Tenn.  
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.  
Hills Co. George B., Jacksonville, Fla.  
MacElwee & Crandall, Inc., Cambridge, Mass.  
Main, Inc., Chas. T., Boston, Mass.  
Spoon & Lewis, Greensboro, N. C.  
Spring, Charles Herbert, Greensboro, N. C.  
Steel & Leiby, Knoxville, Tenn.  
White Engr. Corp., J. G., New York.**—(Consulting.)**Airmap Corp. of Amer., Brooklyn, N. Y.  
Barstow & Co., W. S., Reading, Pa.  
Biggs Engr. Co., W. E., Knoxville, Tenn.  
Charlton & Davis, Ft. Lauderdale, Fla.  
Converse & Co., J. B., Mobile, Ala.  
Engineering Service Corp., Houston, Tex.  
Harrison, Wm. Henry, Washington, D. C.  
Harza Engineering Co., Chicago.  
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.  
Herty, Charles H., New York City.  
Lockwood Greene Engrs., Inc., New York City.  
Main, Inc., Chas. T., Boston, Mass.  
Simmons, Inc. & Associates, B. Stanley, Washington, D. C.  
Smith, Elroy G., Augusta, Ga.  
Stillman & Van Sien, New York, N. Y.  
Wadleigh & Bailey, Washington, D. C.  
White Engineering Corp., J. G., New York.  
Wiedeman & Singleton, Inc., Atlanta, Ga.  
Williamson, Lee H., Charlottesville, Va.

**(Dams.)**

Alpaugh & Sons, Chas. W., Manassas, Va.  
 Batty & Kipp, Inc., Chicago, Ill.  
 Byllesby Engineering and Management Corp., Chicago, Ill.  
 Floyd & Lechridge, Dallas, Texas.  
 Gardner & Howe, Memphis, Tenn.  
 Hardaway Contracting Co., Columbus, Ga.  
 Harza Engineering Co., Chicago.  
 Hedrick Inc., Ira G., Hot Springs Nat'l Park, Ark.  
 Lee, William S., Charlotte, N. C.  
 Main, Inc., Chas. T., Boston, Mass.  
 Muller & Co., J. E., Greenville, S. C.  
 Tucker & Laxton, Charlotte, N. C.  
 Wheeler, Walter H., Minneapolis, Minn.  
 White Engr. Corp., J. G., New York.

**(Drainage and Irrigation.)**

Floyd & Lechridge, Dallas, Texas.  
 Ford, Bacon & Davis, Inc., New York.  
 Fuller & McClintock, New York, N. Y.  
 Hills Co., George B., Jacksonville, Fla.  
 Ludlow Engineers, Winston-Salem, N. C.

**(Efficiency.)**

Barstow & Co., W. S., Reading, Pa.  
 Ernst & Ernst, New York, N. Y.

**(Electrical.)**

Batty & Kipp, Inc., Chicago, Ill.  
 Engineering Service Corp., Houston, Texas.  
 Hoosier Engineering Co., Chicago, Ill.  
 Lee, William S., Charlotte, N. C.  
 Lockwood Greene Engrs., Inc., New York City.  
 Main, Inc., Chas. T., Boston, Mass.  
 Muller & Co., J. E., Greenville, S. C.  
 Sanderson & Porter, New York, N. Y.  
 Stone & Webster, Inc., Boston, Mass.  
 Tucker & Laxton, Charlotte, N. C.  
 Webb Electric Co., Anderson, S. C.  
 White Co., Gilbert C., Durham, N. C.  
 Wiley & Wilson, Lynchburg, Va.

**(Electric-Light and Power Plants.)**

Batty & Kipp, Inc., Chicago, Ill.  
 Biggs Eng. Co., W. E., Knoxville, Tenn.  
 Byllesby Engineering and Management Corp., Chicago, Ill.  
 Ford, Bacon & Davis, Inc., New York.  
 Lee, William S., Charlotte, N. C.  
 Main, Inc., Chas. T., Boston, Mass.  
 Muller & Co., J. E., Greenville, S. C.  
 Sanderson & Porter, New York, N. Y.  
 Stone & Webster, Inc., Boston, Mass.  
 Tucker & Laxton, Charlotte, N. C.  
 White Engineering Corp., J. G., New York.  
 White Co., Gilbert C., Durham, N. C.

**(Flood Control.)**

Floyd & Lechridge, Dallas, Texas.  
 Harza Engineering Co., Chicago.

**(Forest.)**

Lacey & Co., Jas. D., New York, N. Y.

**(Gas.)**

Byllesby Engineering and Management Corp., Chicago, Ill.  
 Ford, Bacon & Davis, Inc., New York.  
 Harrison, William Henry, Washington, D. C.

**(Geological.)**

De Kahl, Courtenay, New York City.  
 Froehling & Robertson, Richmond, Va.  
 Harrison, William Henry, Washington, D. C.  
 Wadleigh & Bailey, Washington, D. C.

**(Harbor Improvements.)**

Billingsley, James W., New Orleans, La.  
 Engineering Service Corp., Houston, Texas.  
 Fay, Spofford & Thorndike, Boston, Mass.

**(Heating.)**

Batty & Kipp, Inc., Chicago, Ill.  
 Biggs Eng. Co., W. E., Knoxville, Tenn.  
 Wiley & Wilson, Lynchburg, Va.

**(Hydraulic.)**

Alpaugh & Sons, Chas. W., Manassas, Va.  
 Floyd & Lechridge, Dallas, Texas.  
 Fuller & McClintock, New York, N. Y.  
 Harza Engineering Co., Chicago.  
 Main, Inc., Chas. T., Boston, Mass.

**(Hydro-electric.)**

Alpaugh & Sons, Chas. W., Manassas, Va.  
 Batty & Kipp, Inc., Chicago, Ill.  
 Byllesby Engineering and Management Corp., Chicago, Ill.  
 Harza Engineering Co., Chicago.  
 Lee, William S., Charlotte, N. C.  
 Ludlow Engineers, Winston-Salem, N. C.  
 Main, Inc., Chas. T., Boston, Mass.  
 Meigs & Meigs, Charlotte, N. C.  
 Sanderson & Porter, New York, N. Y.  
 Scofield Engineering Co., Phila., Pa.  
 Silline & Co., J. E., Greenville, S. C.  
 Tucker & Laxton, Charlotte, N. C.  
 White Engineering Corp., J. G., New York.

**(Ice and Refrigerating.)**

Engineering Service Corp., Houston, Texas.

**(Industrial Plants.)**

Ballinger Co., Philadelphia, Pa.  
 Barstow & Co., W. S., Reading, Pa.  
 Batty & Kipp, Inc., Chicago, Ill.  
 Biggs Eng. Co., W. E., Knoxville, Tenn.  
 Billingsley, James W., New Orleans, La.  
 Charleston Constructors, Inc., Charleston, S. C.  
 Conser, Older & Quinlan, Inc., Chicago.  
 Converse & Co., J. B., Mobile, Ala.  
 Fay, Spofford & Thorndike, Boston, Mass.  
 Gardner & Howe, Memphis, Tenn.  
 Greiner & Co., J. E., Baltimore, Md.  
 Herty, Charles H., New York City.

Hills Co., George B., Jacksonville, Fla.  
 Lockwood Greene Engrs., Inc., New York City.  
 MacIlwhee & Crandall, Inc., Cambridge, Mass.  
 Main, Inc., Chas. T., Boston, Mass.  
 Mees & Mees, Charlotte, N. C.  
 Morgan Constr. Co., Worcester, Mass.  
 Muller & Co., J. E., Greenville, S. C.  
 Preacher & Co., Inc., G. Lloyd, Atlanta.  
 Sanderson & Porter, New York, N. Y.  
 Scofield Engineering Co., Phila., Pa.  
 Simmons, Inc. & Associates, B. Stanley, Washington, D. C.  
 Silline & Co., J. E., Greenville, S. C.  
 Smith, Elroy G., Augusta, Ga.  
 Stone & Webster, Inc., Boston, Mass.  
 Turner, C. A. P., Minneapolis, Minn.  
 Widmer Engineering Co., St. Louis, Mo.  
 Williamson, Lee H., Charlottesville, Va.

**(Industrial Survey.)**

Converse & Co., J. B., Mobile, Ala.  
 Herty, Charles H., New York City.  
 Lockwood Greene Engrs., Inc., New York City.  
 Wadleigh & Bailey, Washington, D. C.

**(Inspection and Tests.)**

Barrow-Agee Laboratories, Memphis, Tenn.  
 Conard & Busby, Burlington, N. J.  
 Dow & Smith, New York, N. Y.  
 Flood & Co., Walter H., Chicago, Ill.  
 Froehling & Robertson, Inc., Richmond, Va.  
 Hunt Co., Robert W., Chicago, Ill.  
 Picard Laboratories, Birmingham, Ala.  
 Pittsburgh Testing Laboratories, Pittsburgh, Pa.  
 Southwestern Laboratories, Ft. Worth, Texas.

**(Landscapes.)**

Draper, E. S., Charlotte, N. C.

**(Lighting.)**

Batty & Kipp, Inc., Chicago, Ill.  
 Byllesby Engineering & Management Corp., Chicago, Ill.  
 Ford, Bacon & Davis, Inc., New York.  
 General Electric Vapor Lamp Co., Hoboken, N. J.  
 Wiley & Wilson, Lynchburg, Va.

**(Mechanical.)**

Batty & Kipp, Inc., Chicago, Ill.  
 Charlton & Davis, Ft. Lauderdale, Fla.  
 Engineering Service Corp., Houston, Texas.  
 Invicta Engineering Co., Birmingham, Ala.  
 Lee, William S., Charlotte, N. C.  
 Lockwood Greene Engrs., Inc., New York City.  
 Main, Inc., Chas. T., Boston, Mass.  
 Meigs & Mees, Charlotte, N. C.  
 Meigs, Bassett & Slaughter, Phila., Pa.  
 Sanderson & Porter, New York, N. Y.  
 Wiley & Wilson, Lynchburg, Va.

**(Metal Protection.)**

Dixie Electro Plating Co., Houston, Tex.

**(Mining. See Engineers, Geological.)****(Municipal.)**

Billingsley, James W., New Orleans, La.  
 Conser, Older & Quinlan, Inc., Chicago.  
 Dow & Smith, New York, N. Y.  
 Harza Engr. Co., C. N., Nashville, Tenn.  
 Hills Co., George B., Jacksonville, Fla.  
 Howerton Engineering Co., Asheville, N. C.  
 Knowles, Inc., Morris, Pittsburgh, Pa.  
 Ludlow Engineers, Winston-Salem, N. C.  
 McCrary Co., The J. B., Atlanta, Ga.  
 Spoon & Lewis, Greensboro, N. C.  
 White Co., Gilbert C., Durham, N. C.

**(Paving and Roads.)**

Billingsley, James W., New Orleans, La.  
 Dow & Smith, New York, N. Y.  
 Freeland, Roberts & Co., Nashville, Tenn.  
 Harza Engr. Co., C. N., Nashville, Tenn.  
 Howerton Engineering Co., Asheville, N. C.  
 Ludlow Engineers, Winston-Salem, N. C.  
 Spoon & Lewis, Greensboro, N. C.  
 White Co., Gilbert C., Durham, N. C.

**(Production.)**

Scofield Engr. Co., Phila., Pa.

**(Public Service Properties.)**

Byllesby Engineering & Management Corp., Chicago, Ill.  
 Ford, Bacon & Davis, Inc., New York.  
 Fuller & McClintock, New York, N. Y.  
 Knowles, Inc., Morris, Pittsburgh, Pa.  
 Main, Inc., Chas. T., Boston, Mass.  
 Sanderson & Porter, New York, N. Y.  
 Scofield Engineering Co., Phila., Pa.  
 Stone & Webster, Inc., Boston, Mass.  
 White Engineering Corp., J. G., New York.

**(Railroad.)**

Mees & Mees, Charlotte, N. C.

**(Reinforced Concrete Bridges, Buildings, etc.)**

Atlantic Bridge Co., Greensboro, N. C.  
 Ballinger Co., Philadelphia, Pa.  
 Batty & Kipp, Inc., Chicago, Ill.  
 Fay, Spofford & Thorndike, Boston, Mass.  
 Freeland, Roberts & Co., Nashville, Tenn.  
 Gardner & Howe, Memphis, Tenn.  
 Greiner & Co., J. E., Baltimore, Md.  
 Lockwood Greene Engrs., Inc., New York City.  
 Main, Inc., Chas. T., Boston, Mass.  
 Steel & Leiby, Knoxville, Tenn.  
 Tucker & Laxton, Charlotte, N. C.

Turner, C. A. P., Minneapolis, Minn.

Wheeler, Walter H., Minneapolis, Minn.

**(Research and Development.)**

Invicta Engineering Co., Birmingham, Ala.

**(Sanitary.)**

Harza Engineering Co., Chicago.

**(Sewage Disposal Plants.)**

Fuller & McClintock, New York, N. Y.  
 Ludlow Engineers, Winston-Salem, N. C.  
 McCrary Co., The J. B., Atlanta, Ga.  
 Wiedeman and Singleton, Inc., Atlanta.

**(Sewerage and Waterworks.)**

Conard & Busby, Burlington, N. J.  
 Conser, Older & Quinlan, Inc., Chicago.  
 Ford, Bacon & Davis, Inc., New York.  
 Fuller & McClintock, New York, N. Y.  
 Harza Engr. Co., C. N., Nashville, Tenn.  
 Hills Co., George B., Jacksonville, Fla.  
 Howerton Engineering Co., Asheville, N. C.  
 Knowles, Inc., Morris, Pittsburgh, Pa.  
 Ludlow Engineers, Winston-Salem, N. C.  
 Mees & Mees, Charlotte, N. C.  
 Sanderson & Porter, New York, N. Y.  
 Spoon & Lewis, Greensboro, N. C.  
 Tucker & Laxton, Charlotte, N. C.  
 White Co., Gilbert C., Durham, N. C.  
 White Engineering Corp., J. G., New York.  
 Wiedeman & Singleton, Inc., Atlanta, Ga.  
 Williamson, Lee H., Charlottesville, Va.

**(Structural.)**

Freeland, Roberts & Co., Nashville, Tenn.  
 Hedrick, Inc., Ira G., Hot Springs Nat'l Park, Ark.  
 Hills Company, Geo. B., Jacksonville, Fla.  
 Lockwood Greene Engrs., Inc., New York City.  
 Simmons, Inc. & Associates, B. Stanley, Washington, D. C.  
 Turner, C. A. P., Minneapolis, Minn.  
 Virginia Bridge & Iron Co., Roanoke, Va.

**(Textile Mills.)**

Ballinger Co., Philadelphia, Pa.  
 Lockwood Greene Engrs., Inc., New York City.  
 Main, Inc., Chas. T., Boston, Mass.  
 Silline & Co., J. E., Greenville, S. C.

**(Transmission Lines.)**

Hoosier Engineering Co., Chicago, Ill.

**(Ventilating and Heating.)**

Biggs Eng. Co., W. E., Knoxville, Tenn.  
 Wiley & Wilson, Lynchburg, Va.

**(Water Supply.)**

Floyd & Lechridge, Dallas, Texas.

**ENGINES (Compressed Air.)**

Dake Engine Co., Grand Haven, Mich.

**(Diesel Type.)**

Fairbanks, Morse & Co., Chicago, Ill.

**(Gas and Gasoline.)**

Light Mfg. & Fdry. Co., Pottstown, Pa.  
 Novo Engine Co., Lansing, Mich.  
 Sterling Engine Co., Buffalo, N. Y.

**(Gas and Oil.)**

Chicago Pneumatic Tool Co., New York.

**(Hoisting.)**

Mundy Hoisting Engine Co., J. S., Newark, N. J.

**(Marine.)**

Fairbanks, Morse & Co., Chicago, Ill.

**(Oil.)**

Ingersoll-Rand Co., New York, N. Y.  
 Continental Gin Co., Birmingham, Ala.

**(Steam.)**

Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
 Cole Mfg. Co., R. D., Newnan, Ga.  
 Lefell & Co., The James, Springfield, O.  
 Lombard Iron Works & Supply Co., Augusta, Ga.  
 Morris Machine Works, Baldwinville, N. Y.  
 Schofield's Sons Co., J. S., Macon, Ga.

**ENVELOPES.**

Young & Seldon Co., Baltimore, Md.

**ESTIMATORS (Building & Construction.)**

Spring, Charles Herbert, Greensboro, N. C.

**EXCAVATING MACHINERY.**

Bay City Shovels, Inc., Bay City, Mich.  
 Bucyrus-Erie Co., Erie, Penna.  
 Harnischfeger Corp., Milwaukee, Wis.  
 Hayward Co., The, New York, N. Y.  
 Industrial Brownhoist Corp., Cleveland.  
 Monaghan Mfg. Corp., Chicago, Ill.  
 National Equipment Corp. (Koshing, Insley, Parsons), Milwaukee, Wis.  
 Northwest Engineering Co., Chicago, Ill.  
 Owen Bucket Co., The, Cleveland, Ohio.  
 Shaw Shovel Co., The, Lorain, Ohio.  
 Universal Power Shovel Co., Milwaukee, Wis.

**EXCAVATORS (Clamshell and Orange Peel.)**

Northwest Engineering Co., Chicago, Ill.  
 Ohio Power Shovel Co., Lima, Ohio.  
 Shaw Shovel Co., Lorain, Ohio.

**(Dragline. See Dragline Excavators.)****(Trench.)**

Barber-Greene Co., Aurora, Ill.  
 Bay City Shovels, Inc., Bay City, Mich.  
 Bucyrus-Erie Co., Erie, Penna.  
 Harnischfeger Corp., Milwaukee, Wis.  
 Hayward Co., The, New York, N. Y.  
 Monaghan Mfg. Corp., Chicago, Ill.  
 Ohio Power Shovel Co., Lima, Ohio.  
 Universal Power Shovel Co., Milwaukee, Wis.

**EXHAUST FANS (See Blowers and Exhaust Fans.)****Systems (See Blowers and Exhaust Fans.)****EXPLOSIVES.**

Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.  
 Hercules Powder Co., Inc., Wilmington, Del.

**FACTORY Management Systems.**

Ernst & Ernst, New York, N. Y.

**FANS, Exhaust (See Blowers and Exhaust Fans.)****FEED-WATER HEATERS and Purifiers.**

American Water Softener Co., Phila., Pa.

**FENCE POSTS (Crescoted.)**

Ayer & Lord Tie Co., Chicago, Ill.

**FENCING Entrance Gates (Iron, Steel and Wire.)**

American Steel and Wire Co., Balto., Md.  
 Anchor Post Fence Co., Baltimore, Md.  
 Cyclone Fence Co., Waukegan, Ill.  
 Page Fence Association, Chicago, Ill.  
 Stewart Iron Works Co., Cincinnati, O.

**FERTILIZER MACHINERY.**

Raymond Bros., Impact Pulv. Co., Chicago.

**FILTER (For Domestic and Industrial Purposes.)**

American Water Softener Co., Phila., Pa.  
 International Filter Co., Chicago, Ill.  
 Rees, S. F., Atlanta.  
 Roberts Filter Mfg. Co., Darby (Phila.), Pa.  
 Scaife & Sons Co., Wm. B., Oakmont, Pa.

**FINANCING.**

Akers, William, Atlanta, Ga.  
 Electric Bond & Share Co., New York.  
 Garraway & Co., S. G., Chicago.  
 Gay & Co., W. O., New York, N. Y.

**FIRE BRICK.**

North American Refractories Co., Cleveland, Ohio.

**(Clay.)**

Alabama Clay Products Co., Birmingham.  
 Cambria Clay Products Co., Blackfork, O.

**FIRE EXTINGUISHERS.**

Myers & Bro. Co., The F. E., Ashland, O.

**FIREPROOF Building Material.**

Bannon Pipe Co., Louisville, Ky.  
 Robertson Co., H. H., Pittsburgh.

**Doors and Shutters.**

Kinnear Mfg. Co., The, Columbus, Ohio.  
 Mahon Co., R. C., Detroit, Mich.  
 Moesch-Edwards Corp., Cincinnati, O.  
 Richards-Wilcox Mfg. Co., Aurora, Ill.  
 Wilson Corp., The J. G., New York City.

**FITTINGS (Wire Rope.)**

Leschen & Sons Rope Co., A., St. Louis.

**FLANGES (Iron and Steel.)**

Amer. Cast Iron Pipe Co., Birmingham.  
 Dart Mfg. Co., E. M., Providence, R. I.

**National Cast Iron Pipe Co.**, Birmingham, Ala.  
**Taylor Forge & Pipe Wks.**, Chicago, Ill.  
**U. S. Pipe & Foundry Co.**, Burlington, N. J.  
**Vest Mch. Co.**, Henry, Louisville, Ky.  
**—and Flanged Fittings.**  
**Grinnell Co., Inc.**, Providence, R. I.

**FLOOR (Cork Composition.)**  
**Congoleum-Nairn Inc.**, Kearny, N. J.  
**—(Hardwood, Maple, Oak.)**  
**Kirby Lumber Co.**, Houston, Tex.  
**Nashville Hardwood Flooring Co.**, Nashville, Tenn.

**—(Linoleum.)**  
**Congoleum-Nairn Inc.**, Kearny, N. J.  
**—(Northern Hard Maple.)**  
**Holt Hardwood Co.**, Oconomowoc, Wis.

**—(Open Steel.)**  
**Blaw-Knox Co.**, Pittsburgh, Pa.  
**Irring Iron Works Co.**, Long Is. City, N. Y.  
**Kerlow Steel Flooring Co.**, Jersey City, N. J.

**—Covering.**  
**Congoleum-Nairn Inc.**, Kearny, N. J.  
**—Hardener (Concrete.)**  
**Seonoborn Sons, Inc.**, L. New York.  
**Stonhard Co.**, Phila., Pa.

**—Plates and Stair Treads.**  
**American Pressed Steel Co.**, Phila., Pa.  
**Central Iron & Steel Co.**, Harrisburg, Pa.  
**Ryan & Son, Inc.**, Jos. T., St. Louis and New York.

**—Steel (For Concrete Culverts, Roads, Streets.)**  
**Blaw-Knox Co.**, Pittsburgh, Pa.

**—Wax.**  
**Congoleum-Nairn Inc.**, Kearny, N. J.  
**—(Wood) Preservative.**  
**Stonhard Co.**, Phila., Pa.

**FLUSH-TANK SIPHONS.**  
**Pacific Flush-Tank Co.**, New York, N. Y.

**FLYER PRESSERS.**  
**Southern Spindle & Flyer Co.**, Charlotte, N. C.

**FLYERS.**  
**Southern Spindle & Flyer Co.**, Charlotte, N. C.

**FORGINGS (Drop.)**  
**Vogt Mch. Co.**, Henry, Louisville, Ky.

**FORMS, Steel (For Concrete, Culverts, Roads, Streets, Curbs, Sidewalks, Tiles.)**  
**Blaw-Knox Co.**, Pittsburgh, Pa.

**FOUNDATION MASONRY.**  
**Olligan Co., A. H.**, Richmond, Va.

**FOUNDRIES and Machine Shops.**  
**Dugger Steel Casting Co.**, New Castle, Del.  
**General Machine Works**, York, Pa.  
**Glamorgan Pipe & Fdry. Co.**, Lynchburg, Va.  
**Goldens' Fdry. & Mch. Co.**, Columbus, Ga.  
**Lombard Iron Works & Supply Co.**, Augusta, Ga.  
**Moccasin Bushing Co.**, Chattanooga, Tenn.  
**Mountain States Steel Foundries**, Parkersburg, W. Va.

**FOUNDRY Equipment and Supplies.**  
**Chain Belt Co.**, Milwaukee, Wis.  
**Hill & Griffith Co.**, The, Cincinnati, O.  
**Whitting Corp.**, Harvey, Ill.

**—Facings (Talc and Soapstone.)**  
**Hill & Griffith Co.**, The, Cincinnati, O.

**FREIGHT RATE ADJUSTMENTS.**  
**Allen, Charles S.**, New York City.

**FUMIGATORS (Fruit, Nuts, Nursery Stock, etc.)**  
**Union Tank & Pipe Co.**, Los Angeles, Cal.

**FURNACE LININGS.**  
**North American Refractories Co.**, Cleveland, Ohio.

**FURNACES (Industrial.)**  
**Combustion Engr., Corp.**, New York City.  
**—(Water-Cooled.)**  
**Combustion Engr. Corp.**, New York City.  
**Fuller Lehigh Co.**, Fullerton, Pa.

**GALVANIZED Products.**  
**Birmingham Galvanizing Co.**, Birmingham, Ala.  
**Cattle & Bros., Jos. P.**, Philadelphia, Pa.  
**—Steel and Iron.**  
**American Rolling Mill Co.**, Middletown, O.  
**American Sheet & Tin Plate Co.**, Pittsburgh, Pa.  
**Granite City Steel Co.**, Granite City, Ill.  
**Republic Steel Corp.**, Youngstown, Ohio.

**GALVANIZING (Cadmium Plating.)**  
**Birmingham Galvanizing Co.**, Birmingham, Ala.

**—(Hot Dip.)**  
**Bessemer Galvanizing Works**, Birmingham, Ala.  
**Birmingham Galvanizing Co.**, Birmingham, Ala.  
**Cattle & Bros., Jos. P.**, Philadelphia, Pa.  
**Newport News Shipbuilding & Drydock Co.**, Newport News, Va.

**GAS HOLDERS.**  
**Chattanooga Boiler & Tank Co.**, Chattanooga, Tenn.  
**Chicago Bridge & Iron Works**, Atlanta, Ga.

**—Producers.**  
**Gas-O-Flame Stove Works**, Port Deposit, Md.  
**Morgan Construction Co.**, Worcester, Mass.  
**Wood & Co., E. D.**, Philadelphia, Pa.

**GASOLINE and KEROSENE.**  
**Gulf Refining Co.**, Pittsburgh, Pa.

**GASOLINE SHOVELS (See Shovels.)**

**GATES (Automatic Drainage.)**  
**Armco Culvert Mfr. Assn.**, Middletown, O.  
**Dixie Culvert & Metal Co.**, Atlanta, Ga.  
**Dixie Culvert Mfg. Co.**, Little Rock, Ark.  
**Louisiana Corr. Culvert Co.**, Baton Rouge, La.  
**Tenn. Metal Culvert Co.**, Nashville, Tenn.  
**Western Metal Mfg. Co.**, Houston, Texas.

**GAUGE GLASSES.**  
**Jenkins Bros.**, New York, N. Y.

**GEARS.**  
**DeLaval Steam Turbine Co.**, Trenton, N. J.  
**Earle Gear & Machine Co.**, Phila., Pa.  
**General Electric Co. Schenectady**, N. Y.  
**Woods' Sons Co., T. B.**, Chambersburg, Pa.

**—(Worm Reduction.)**  
**DeLaval Steam Turbine Co.**, Trenton, N. J.

**GENERATORS, MOTORS (New.)**  
**Allis-Chalmers Mfg. Co.**, Milwaukee, Wis.  
**General Electric Co. Schenectady**, N. Y.  
**Howell Electric Motors Co.**, Howell, Mich.  
**Westinghouse Elec. & Mfg. Co.**, E. Pittsburgh, Pa.

**—(Used.)**  
**Electrical Equip. Co.**, Raleigh, N. C.  
**Gregory Electric Co.**, Chicago.  
**Nashville Ind. Corp.**, Old Hickory, Tenn.  
**Nussbaum & Co., V. M.**, Ft. Wayne, Ind.  
**O'Brien Machinery Co.**, Phila., Pa.  
**Randle Machinery Co.**, The, Cincinnati, O.  
**Stewart Elec. Co.**, John A., Cincinnati.

**GEOLOGISTS. (See Engineers, Geological.)**

**GLASS (Art.)**  
**Binswanger & Co.**, Memphis, Tenn.  
**Hires Turner Glass Co.**, Philadelphia, Pa.

**—(Plate.)**  
**Binswanger & Co., Inc.**, Memphis, Tenn.  
**Blue Ridge Glass Corp.**, Kingsport, Tenn.  
**Vitres Turner Glass Co.**, Philadelphia, Pa.  
**Southwestern Sheet Glass Co.**, Okmulgee, Okla.

**—(Window.)**  
**Blue Ridge Glass Corp.**, Kingsport, Tenn.  
**Vitres Turner Glass Co.**, Philadelphia, Pa.  
**Southwestern Sheet Glass Co.**, Okmulgee, Okla.

**—(Wire.)**  
**Blue Ridge Glass Corp.**, Kingsport, Tenn.  
**Vitres Turner Glass Co.**, Phila., Pa.  
**Southwestern Sheet Glass Co.**, Okmulgee, Okla.

**GRADERS (Elevating.)**  
**Caterpillar Tractor Co.**, San Leandro, Calif.

**—(One Man Motor.)**  
**Riddell Co., W. A.**, Bucyrus, Ohio.

**GRAPHITE.**  
**Dixon Crucible Co.**, Jos., Jersey City, N. J.

**GRATES and Grate Bars.**  
**Schofield's Sons Co., J. S.**, Macon, Ga.  
**Vogt Machine Co.**, Henry, Louisville, Ky.

**GRATING (Area, Flooring, Sidewalk.)**  
**Bates Steel Corp.**, Walter, Gray, Ind.  
**Blaw-Knox Co.**, Pittsburgh, Pa.  
**Hendrick Mfg. Co.**, Carbondale, Pa.  
**Irring Iron Works**, Long Is. City, N. Y.  
**Kerlow Steel Flooring Co.**, Jersey City, N. J.

**GRAVEL (Roofing and Road.)**  
**American Limestone Co.**, Knoxville, Tenn.  
**Arundel Corp.**, The, Baltimore, Md.  
**Boxley & Co., W. W.**, Roanoke, Va.  
**Friend & Co., Inc.**, Petersburg, Va.

**GREASE CUPS.**  
**Lunkenheimer Co.**, The, Cincinnati, O.

**GRILLES (Brass, Bronze, Steel, etc.)**  
**Manhattan Perforated Metal Co., Inc.**, Long Island City, N. Y.

**GRINDERS (Electric.)**  
**Chicago Pneumatic Tool Co.**, New York.

**—(Gypsum, Limestone, etc.)**  
**Raymond Bros. Impact Pulv. Co.**, Chicago.

**GRINDING MACHINERY (Flexible Shaft.)**  
**Strand & Co., N. A.**, Chicago, Ill.

**—Wheels.**  
**Carborundum Co.**, Niagara Falls, N. Y.

**GUARD RAIL (Road.)**  
**National Traffic Guard Co.**, Atlanta.

**GUNITE CONSTRUCTION.**  
**Cement-Gun Co., Inc.**, Allentown, Pa.  
**Cement Gun Construction Co.**, Chicago.  
**Gunite Conc. & Constr. Co.**, Kansas City.  
**Gunite Constr. Co.**, New York City.  
**Rust Engineering Co.**, Birmingham, Ala.

**GUNPOWDER.**  
**Du Pont de Nemours & Co., Inc., E. I.**, Wilmington, Del.  
**Hercules Powder Co., Inc.**, Wilmington, Del.

**GUNS (Hydraulic.)**  
**Georgia Iron Works**, Augusta, Ga.

**HANGARS (Airplane.)**  
**Blaw-Knox Co.**, Pittsburgh, Pa.  
**Braden Steel Corp.**, Tulsa, Okla.  
**Ingalls Iron Works**, Birmingham, Ala.

**HANGERS (Door, All Kinds.)**  
**Richards-Wilcox Mfg. Co.**, Aurora, Ill.

**—(Line Shaft.)**  
**American Pulley Co.**, Philadelphia, Pa.  
**Wood's Sons Co., T. B.**, Chambersburg, Pa.

**HARBOR IMPROVEMENTS.**  
**Arundel Corp.**, Baltimore, Md.  
**Alantie, Gulf & Pacific Co.**, New York.

**HARDWARE (Door.)**  
**Richards-Wilcox Mfg. Co.**, Aurora, Ill.

**HEATERS (Asphalt.)**  
**Honhorst Co., Jos.**, Cincinnati, O.

**HEATING Apparatus (Engineers and Contractors.)**  
**Grinnell Co., Inc.**, Providence, R. I.  
**Poe Piping & Heating Co.**, Greenville, S. C.  
**Skinner Bros. Mfg. Co.**, St. Louis, Mo.

**—Systems.**  
**Skinner Bros. Mfg. Co.**, St. Louis, Mo.

**HOISTING MACHINERY.**  
**Lidgerwood Mfg. Co.**, Elizabeth, N. J.

**HOISTS (Air Portable.)**  
**Ingersoll-Rand Co.**, New York, N. Y.  
**Sullivan Machinery Co.**, Chicago, Ill.

**—(Chain.)**  
**Harrington Co.**, The, Philadelphia, Pa.

**—(Electric.)**  
**Harnischfeger Corp.**, Milwaukee, Wis.  
**Milwaukee Elec. Crane & Hoist Corp.**, Milwaukee, Wis.

**Mundy Hoisting Engine Co., J. S.**, Newark, N. J.  
**Novo Engine Co.**, Lansing, Mich.  
**O. K. Clutch & Mch. Co.**, Columbia, Pa.  
**Street Bros. Mch. Wks.**, Chattanooga, Tenn.

**—(Gasoline.)**  
**Clyde Iron Works Sales Co.**, Duluth, Minn.  
**Dake Engine Co.**, Grand Haven, Mich.  
**Mundy Hoisting Engine Co., J. S.**, Newark, N. J.  
**National Equipment Corp. (C. H. & E. Division)**, Milwaukee, Wis.  
**Novo Engine Co.**, Lansing, Mich.  
**O. K. Clutch & Mch. Co.**, Columbia, Pa.  
**Street Bros. Mch. Wks.**, Chattanooga, Tenn.

**—(Hand Power.)**  
**O. K. Clutch & Mch. Co.**, Columbia, Pa.

**—(Steam.)**  
**Clyde Iron Works Sales Co.**, Duluth, Minn.

**Dake Engine Co.**, Grand Haven, Mich.  
**Mundy Hoisting Engine Co., J. S.**, Newark, N. J.  
**Street Bros. Mch. Wks.**, Chattanooga, Tenn.

**HOOPS, Bands, etc. (Galvanized.)**  
**Connors Steel Co.**, Birmingham, Ala.

**HOPPERS (Aggregate, Measuring and Weighing.)**  
**Blaw-Knox Co.**, Pittsburgh, Pa.

**HOSE (Rubber.)**  
**Republic Rubber Co.**, Youngstown, Ohio.

**HOTELS.**  
**Heiss Hotel Systems**, St. Louis, Mo.  
**Southern Hotel**, The, Baltimore, Md.

**HOUSE MOVING.**  
**Eichleay, Jr. Co., John**, Pittsburgh.

**HULLS (Steel.)**  
**American Steel Dredge Co.**, Fort Wayne, Ind.

**HUMIDIFYING AND DRYING EQUIPMENT.**  
**Grinnell Co., Inc.**, Providence, R. I.  
**Skinner Bros. Mfg. Co.**, St. Louis, Mo.

**HYDRANTS (Fire.)**  
**Ludlow Valve Mfg. Co.**, The, Troy, N. Y.  
**Myers & Bro. Co.**, The, F. S. Ashland, O.  
**Vogt Brothers Mfg. Co.**, Louisville, Ky.  
**Wood & Co., R. D.**, Philadelphia, Pa.

**HYDRO - ELECTRIC POWER COMPANIES (Offering Industrial and Commercial Opportunities.)**  
**Alabama Power Co.**, Birmingham, Ala.  
**Central Power & Light Co.**, San Antonio.  
**Georgia Power Co.**, Atlanta, Ga.  
**Texas Power & Light Co.**, Dallas, Texas.

**ICE and Refrigerating Machinery and Supplies.**  
**Ingersoll-Rand Co.**, New York, N. Y.  
**Vogt Mch. Co.**, Henry, Louisville, Ky.

**INCINERATORS.**  
**Duplex Hanger Co.**, Cleveland, Ohio.

**INCORPORATORS.**  
**Corporation Service Co.**, Wilmington, Del.  
**Delaware Registration Trust Co.**, Wilmington, Del.

**INJECTORS.**  
**Jenkins Bros.**, New York, N. Y.  
**Randle Machinery Co.**, The, Cincinnati, O.

**INSULATING MATERIALS.**  
**General Electric Co.**, Schenectady, N. Y.  
**Okonite Co.**, New York, N. Y.

**INVESTMENT SECURITIES.**  
**Electric Bond & Share Co.**, New York.  
**Gay & Co., W. O.**, New York City.  
**Hanchett Bond Co., Inc.**, The, Chicago, Ill.  
**Mercantile Trust Co.**, Baltimore, Md.  
**Nuveen & Co.**, John, Chicago.  
**Peabody & Co.**, Chicago.  
**Provident Savings Bank & Trust Co.**, Cincinnati, Ohio.  
**Taylor, Wilson & Co., Inc.**, Cincinnati, O.

**IRON.**  
**Tennessee Coal, Iron & Railroad Co.**, Birmingham, Ala.

**—(Ingot, For Culverts, etc.)**  
**American Rolling Mill Co.**, Middletown, O.

**JANITOR SUPPLIES.**  
**Clark, Lloyd T.**, Southern Pines, N. C.

**JOINTS (Pipe.)**  
**Leadite Co.**, The, Philadelphia, Pa.

**JOIST HANGERS.**

Duplex Hanger Co., Cleveland, Ohio.

**KETTLES (Pavers and Roofers.)**

Hobbs Co., Jos., Cincinnati, O.

**LADDERS (Rolling.)**

Myers &amp; Bro. Co., The F. E., Ashland, O.

**—(Wooden.)**Dayton Safety Ladder Co., Cincinnati, O.  
Patent Scaffolding Co., Chicago, Ill.**LAMPS (Incandescent.)**General Electric Vapor Lamp Co., Hoboken, N. J.  
Western Electric Co., New York City.**LATH (Metal.)**

Ingalls Iron Works Co., Birmingham, Ala.

**LATHES.**

Sebastian Lathe Co., Cincinnati, Ohio.

**LIGHTING (Factory and Mill.)**

General Electric Vapor Lamp Co., Hoboken, N. J.

**—Fixtures (Electric.)**Benson Brass & Chandelier Works, Kansas City, Mo.  
Western Electric Co., New York City.**LININGS (Flue, Fire Clay.)**Lee Clay Products Co., Clearfield, Ky.  
Owensboro Sewer Pipe Co., Owensboro, Ky.**—(Tube Mill.)**

Fuller Lehigh Co., Fullerton, Pa.

**LINOLEUM (Battleship, Embossed Inlaid, Inlaid, Jasper.)**

Congoleum-Nairn Inc., Kearny, N. J.

**LITHOGRAPHERS and ENGRAVERS.**Smith & Son Co., Oscar T., Baltimore, Md.  
Young & Selden Co., Baltimore, Md.**LOADING and UNLOADING MACHINERY (Portable.)**Barber-Greene Co., Aurora, Ill.  
Northwest Engineering Co., Chicago, Ill.**LOCOMOTIVES (Compressed Air.)**

Porter Co., H. K., Pittsburgh, Pa.

**—(Wireless Stored Steam.)**

Porter Co., H. K., Pittsburgh, Pa.

**—(Gasoline.)**Porter Co., H. K., Pittsburgh, Pa.  
Whitcomb Co., Geo. D., Rochelle, Ill.**—(Industrial.)**Birmingham Rail & Locomotive Co., Birmingham, Ala.  
Porter Co., H. K., Pittsburgh, Pa.  
Southern Iron & Equipment Co., Atlanta, Whitcomb Co., Geo. D., Rochelle, Ill.**—(Mining.)**Porter Co., H. K., Pittsburgh, Pa.  
Whitcomb Co., Geo. D., Rochelle, Ill.**—(Railway.)**Porter Co., H. K., Pittsburgh, Pa.  
Southern Iron & Equipment Co., Atlanta, Whitcomb Co., Geo. D., Rochelle, Ill.**LOOM PICK COUNTER**

Veeder-Root, Inc., Hartford, Conn.

**LUBRICANTS.**Dixon Crucible Co., Jos., Jersey City, N. J.  
Gulf Refining Co., Pittsburgh, Pa.**LUBRICATORS (Force Feed.)**

Lunkenheimer Co., The, Cincinnati, O.

**LUMBER (Ceiling, Flooring, Siding.)**Industrial Lumber Co., Elizabeth, La.  
Kirby Lumber Co., Houston, Texas.**—(Creosoted.)**Amer. Creosote Wks., Inc., New Orleans, La.  
Amer. Creosoting Co., Inc., Louisville, Ky.  
Ayer & Lord Tie Co., Inc., Chicago.  
Carolina Wood Preserving Co., Charleston, S. C.  
Delaware Wood Preserving Co., Phila.  
Eppinger & Russell Co., New York, N. Y.  
Gulf States Creos. Co., Hattiesburg, Miss.  
Savannah Creos. Co., Savannah, Ga.**—(Heavy Construction, Pitch, Pine, etc.)**Brooks-Scanlon Corp., Foley, Florida.  
Industrial Lumber Co., Elizabeth, La.  
Kirby Lumber Co., Houston, Texas.**—Yellow Pine.**

Brooks-Scanlon Corp., Foley, Florida.

**—(Zinc Meta Arsenite Treated.)**

Curtin-Howe Corp., New York City.

**MACHINERY (Special.)**Bliss Co., E. W., Brooklyn, N. Y.  
Earle Gear & Machine Co., Phila., Pa.  
Fernholts Machinery Co., St. Louis, Mo.  
General Machine Works, York, Pa.  
Whitting Corp., Harvey, Ill.**—and Supplies (New and Used.)**Electric Service Co., Cincinnati, Ohio.  
Equip. Sales & Rentals Co., Pittsburgh.  
Heineken Engineering Corp., New York.  
Marine Metal & Supply Co., New York.  
Nashville Ind. Corp., Old Hickory, Tenn.  
O'Brien Machinery Co., The, Phila., Pa.  
Randle Machinery Co., The, Cincinnati, O.  
Ryerson & Son, Inc., Jos. T., St. Louis and New York.  
Seyfert's Sons, Inc., L. F., Phila., Pa.  
Zelnicker Supply Co., W. A., St. Louis.**MACHINE TENDERS (Steel.)**

Angle Steel Steel Co., Plainwell, Mich.

**—(Tools.)**Ryerson & Son, Inc., Jos. T., St. Louis and New York.  
Sebastian Lathe Co., Cincinnati, Ohio.**—(Used.)**Delta Equipment Co., Philadelphia, Pa.  
O'Brien Machinery Co., Phila., Pa.**MAIL CHUTES.**

Cutler Mail Chute Co., Rochester, N. Y.

**MARBLE (Producers and Manufacturers.)**

Georgia Marble Co., Tate, Ga.

**MATERIAL ELEVATORS.**

National Equipment Corp. (Insley, C. H. &amp; E.), Milwaukee, Wis.

**METAL-Cutting Machinery.**

Earle Gear &amp; Machine Co., Phila., Pa.

**—Working Machinery.**

Bliss Co., E. W., Brooklyn, N. Y.

**MILL MACHINERY and SUPPLIES.**

Lombard Iron Works &amp; Supply Co., Augusta, Ga.

**MINING MACHINERY.**

McLanahan-Stone Machine Co., Hollidaysburg, Pa.

**MIXERS.**

National Equipment Corp. (Koebring, T. L. Smith, Kwik-Mix), Milwaukee, Wis.

**—(Asphalt.)**

Erie Machine Shops, Erie, Pa.

**—(Hot.)**

Koebring Co., Milwaukee, Wis.

**—(Mortar.)**Chain Belt Co., Milwaukee, Wis.  
Jaeger Machine Co., Columbus, Ohio.**—(Plaster.)**Blystone Mfg. Co., Cambridge Springs, Pa.  
Chain Belt Co., Milwaukee, Wis.  
Dunning & Boschert Press Co., Syracuse, N. Y.  
Jaeger Machine Co., Columbus, Ohio.**MORTAR INGREDIENT.**

Louisville Cement Co., Louisville, Ky.

**MOTORS (Electric.)**Fairbanks, Morse & Co., Chicago, Ill.  
General Electric Co., Schenectady, N. Y.  
Howell Electric Motor Co., Howell, Mich.  
Western Electric Co., New York City.  
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.**MOTOR TRUCKS.**

International Harvester Co., of America, Inc., Chicago, Ill.

**NAILS (Cut.)**

Reading Iron Co., Reading, Pa.

**—and Spikes.**American Steel & Wire Co., Balto., Md.  
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.  
Youngtown Sheet & Tube Co., Youngtown, Ohio.**NATURAL GAS COMPANIES.**(Offering Industrial and Commercial Opportunities.)  
Arkansas Natural Gas Corp., Shreveport, La.**OIL (Fuel and Gas.)**

Gulf Refining Co., Pittsburgh, Pa.

**—Cups.**

Lunkenheimer Co., The, Cincinnati, O.

**ORE-WASHING MACHINERY.**Georgia Iron Works, Augusta, Ga.  
McLanahan Stone Machine Co., Hollidaysburg, Pa.**ORNAMENTAL BRONZE WORK.**Heath Co., J. S., Waukegan, Ill.  
Michaels Art Bronze Co., Covington, Ky.**—Iron Work.**Roanoke Iron & Bridge Wks., Roanoke, Va.  
Sneed Architectural Iron Works, Louisville, Ky.  
Southern Engineering Co., Charlotte, N. C.  
Stewart Iron Works Co., Cincinnati, O.**PACKAGE SERVICE (Corrugated Paper.)**

Hinde &amp; Dauch Paper Co., Sandusky, O.

**PACKING (Asbestos, Metallic, Rubber, Leather, etc.)**Jenkins Bros., New York, N. Y.  
Republic Rubber Co., Youngstown, Ohio.**—Protection (Freight Shipments.)**

Kimberly Clark Corp., Chicago, Ill.

**PAINT (Aluminum.)**

Aluminum Co. of America, Pittsburgh, Pa.

**—(Metal Surfaces.)**Aluminum Co. of America, Pittsburgh, Pa.  
Dixon Crucible Co., Jos., Jersey City, N. J.**—(Mill White, For Interior.)**Aluminum Co. of America, Pittsburgh, Pa.  
Sonneborn Sons, Inc., L., New York.**—(Preservative.)**Cabot, Inc., Samuel, Boston, Mass.  
Foster Co., Benjamin, Philadelphia, Pa.**PANELBOARDS.**

Adam Elec. Co., Frank, St. Louis.

**PAPER BOXES (Corrugated, Shipping.)**

Hinde &amp; Dauch Paper Co., Sandusky, O.

**PARTITIONS (Metal, Folding, Rolling.)**Kinnear Mfg. Co., The, Columbus, Ohio.  
Lupton's Sons Co., David, Phila., Pa.**—(Sectionfold, Rolling, Wood.)**

Wilson Corp., The, J. G. New York.

**PATENT ATTORNEYS.**Buck, Sterling P., Washington, D. C.  
Coleman, Watson E., Washington, D. C.  
Eaton, Paul B., Charlotte, N. C.  
Sannett, Edward C., Washington, D. C.  
Seymour & Bright, Washington, D. C.**PATTERNS (Drawing, etc.)**

Haas Pattern Co., A. W., Atlanta, Ga.

**PAVING BLOCKS (Creosoted Wood.)**

American Creosote Works, New Orleans.

**—(Brick.)**

National Paving Brick Mfrs. Assn., Washington, D. C.

**—Mixers.**

National Equipment Corp. (Koebring, T. L. Smith), Milwaukee, Wis.

**—Plant (Asphalt.)**

Simplicity System Co., Chattanooga, Tenn.

**PENSTOCKS.**Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Chicago Bridge & Iron Works, Atlanta.  
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.  
Smith Co., S. Morgan, York, Pa.**PERFORATED METAL.**Chicago Perforating Co., Chicago, Ill.  
Erdle Perforating Co., Rochester, N. Y.  
Harrington & King Perf. Co., Chicago.  
Hendrick Mfg. Co., Carbondale, Pa.  
Manhattan Perforated Metal Co., Inc., Long Island City, N. Y.  
Mundt & Sons, Charles, Jersey City, N. J.**PETROLEUM REFINERS.**

Gulf Refining Co., Pittsburgh, Pa.

**PHOSPHATE ACID.**

Davison Chemical Co., Baltimore, Md.

**—(Machinery.)**

McLanahan-Stone Machine Co., Hollidaysburg, Pa.

**PIG-IRON.**Republic Steel Corp., Youngstown, Ohio.  
Stess-Sheffield Steel & Iron Co., Birmingham, Ala.

Tennessee Coal, Iron &amp; Railroad Co., Birmingham, Ala.

**PILE SHOES.**

Jamney, Jr., Jos. A., Phila., Pa.

**PILING (Creosoted.)**Amer. Creosote Wks., Inc., New Orleans.  
Amer. Creosoting Co., Inc., Louisville.  
Ayer & Lord Tie Co., Inc., Chicago.  
Carolina Wood Preserving Co., Charleston, S. C.  
Savannah Creosoting Co., Inc., Savannah.  
Wales Wood-Preserving Co., Norfolk, Va.**—(Steel Sheet.)**Carnegie Steel Co., Pittsburgh, Pa.  
Zelnicker Supply Co., W. A., St. Louis.**PILLOW BLOCKS.**

Goldens' Fdry. &amp; Mch. Co., Columbus, Ga.

**PIPE.**

Albert &amp; Davidson Pipe Corp., Brooklyn, N. Y.

Albert Pipe Sup. Co., Inc., Brooklyn, N. Y.

Armo Culvert Mfrs. Assn., Middletown, Ohio.

Birmingham Boiler &amp; Engr. Co., Birmingham, Ala.

Central Pipe &amp; Sup. Co., Charleston, W. Va.

Greenpoint Iron &amp; Pipe Co., Inc., Brooklyn, N. Y.

Hudson Pipe &amp; Sup. Co., Bayonne, N. J.

Maryland Pipe &amp; Steel Corp., Baltimore, Md.

National Tube Co., Pittsburgh, Pa.

Pittsburgh Piping &amp; Equip. Co., Pittsburgh, Pa.

Power Piping Co., Pittsburgh, Pa.

**—(Cast Iron.)**

Amer. Cast Iron Pipe Co., Birmingham.

Cast Iron Pipe Research Assn., Chicago.

Central Foundry Co., The, New York, N. Y.

Glamorgan Pipe &amp; Fdry. Co., Lynchburg, Va.

National Cast Iron Pipe Co., Birmingham, Ala.

U. S. Pipe &amp; Foundry Co., Burlington, N. J.

**—(Dredge.)**

Abendroth &amp; Root Mfg. Co., New York.

**—(Hammer-Welded.)**

National Tube Co., Pittsburgh, Pa.

**—(Iron and Steel.)**

Ryerson &amp; Son, Inc., Jos. T., St. Louis, and New York.

**—(Riveted.)**

Abendroth &amp; Root Mfg. Co., New York.

**—(Second-Hand.)**

Albert &amp; Davidson Pipe Corp., Brooklyn, N. Y.

Albert Pipe Sup. Co., Inc., Brooklyn, N. Y.

Central Pipe &amp; Sup. Co., Charleston, W. Va.

Greenpoint Iron &amp; Pipe Co., Inc., Brooklyn, N. Y.

Hudson Pipe &amp; Supply Co., Bayonne, N. J.

Marine Metal &amp; Supply Co., New York.

Maryland Pipe &amp; Steel Corp., Baltimore, Md.

**—(Spiral Riveted.)**

Abendroth &amp; Root Mfg. Co., New York.

Taylor Forge &amp; Pipe Wks., Chicago, Ill.

**—(Steel.)**

Bethlehem Steel Co., Bethlehem, Pa.

National Tube Co., Pittsburgh, Pa.

Pittsburgh Piping &amp; Equip. Co., Pittsburgh, Pa.

Power Piping Co., Pittsburgh, Pa.

Republic Steel Corp., Youngstown, Ohio.

Youngstown Sheet &amp; Tube Co., Youngstown, Ohio.

**—(Welded.)**

Welded Products Co. of La., Inc., New Orleans, La.

**—(Wrought Iron.)**

Reading Iron Co., Reading, Pa.

**—Benders and Benders.**

Grinnell Co., Inc., Providence, R. I.

**—Bending Machines.**

American Pipe Bending Machine Co., Boston, Mass.

**—Coatings.**

Foster Co., Benjamin, Philadelphia, Pa.

**—Fittings.**

Amer. Cast Iron Pipe Co., Birmingham.

Georgia Iron Works, Augusta, Ga.

Grinnell Co., Inc., Providence, R. I.

**—Lines (Water, Gas and Oil—Riveted or Welded.)**

Biggs Boiler Works Co., Akron, Ohio.

**—Machinery (Concrete.)**

Quinn Wire &amp; Iron Works, Boone, Iowa.

**—Unions and Joints.**

Dart Mfg. Co., E. M., Providence, R. I.

**—Systems (Industrial.)**

Grinnell Co., Inc., Providence, R. I.

Pittsburgh Piping &amp; Equip. Co., Pittsburgh, Pa.

Power Piping Co., Pittsburgh, Pa.

**PLANERS and Mortisers (Hand and Electric.)**

Wappat, Incorporated, Pittsburgh, Pa.

**PLATES (Steel.)**

Bethlehem Steel Co., Bethlehem, Pa.  
 Carnegie Steel Co., Pittsburgh, Pa.  
 Central Iron & Steel Co., Harrisburg, Pa.  
 Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
 Granite City Steel Co., Granite City, Ill.  
 Gulf States Steel Co., Birmingham, Ala.  
 Myerson & Son, Inc., Jos. T., St. Louis and New York.  
 Tennessee Coal, Iron & Railroad Co., Birmingham.

**PNEUMATIC TOOLS.**

Chicago Pneumatic Tool Co., New York.  
 Ingersoll-Rand Co., New York, N. Y.

**POLES (Creosoted.)**

Amer. Creosote Wks., Inc., New Orleans.  
 Amer. Creosoting Co., Inc., Louisville, Ky.  
 Ayer & Lord Tie Co., Inc., Chicago.  
 Brown Wood Preserving Co., Louisville, Ky.  
 Carolina Wood Preserving Co., Charleston, S. C.  
 Savannah Creosoting Co., Savannah, Ga.  
 Taylor-Colquitt Co., Spartanburg, S. C.

**—(Steel.)**

Bates Steel Corp., Walter, Gray, Ind.

**—(Tubular, Steel.)**

National Tube Co., Pittsburgh, Pa.

**—(Zinc Meta Arsenite Treated.)**

Curtin-Howe Corp., New York City.

**POLISHING MACHINERY.**

(Wheels, Blocks.)  
 Carborundum Co., Niagara Falls, N. Y.

**PORTABLE HOUSES (Metal.)**

Braden Steel Corp., Tulsa, Okla.

**POST CAPS.**

Duplex Hanger Co., Cleveland, Ohio.

**POSTS (Cast Iron, Railway and Highway.)**

U. S. Pipe & Foundry Co., Burlington, N. J.

**POWER TRANSMISSION MACHINERY.**

American Pulley Co., Philadelphia, Pa.  
 Diamond Chain & Mfg. Co., Indianapolis.  
 Golden's Fdy. & Mch. Co., Columbus, Ga.  
 Morse Chain Co., Ithaca, N. Y.  
 O'Brien Machinery Co., Phila., Pa.  
 Schofield's Sons Co., J. S., Macon, Ga.  
 Wood's Sons Co., T. B., Chambersburg, Pa.  
 —(Pumps.)  
 Lullwiler Pumping Engine Co., Rochester, N. Y.

**PREHEATERS (Air.)**

Combustion Engr. Corp., New York City.

**PRESSES, (Baling, Cottonseed Oil, Hydraulic and Power.)**

Dunning & Boschert Press Co., Inc., Syracuse, N. Y.  
 Ripley Foundry & Machine Co., Ripley, O.  
 —(Metal Stamping.)  
 Bliss Co., E. W., Brooklyn, N. Y.

**PRINTERS (Book, Catalog, Job.)**

Smith & Son Co., Oscar T., Baltimore Md.  
 Young & Seiden Co., Baltimore, Md.

**PRODUCER (Gas Machines.)**

Gas-O-Flame Stove Works, Port Deposit, Md.  
 Morgan Construction Co., Worcester, Mass.  
 Wood & Co., B. D., Phila., Pa.

**PULLER-JACKS.**

Edelblute Co., T. H., Pittsburgh, Pa.

**PULLEYS (Friction Clutch.)**

Caldwell Co., Inc., W. E., Louisville, Ky.  
 Schultz & Son, A. L., Chicago, Ill.  
 Wood's Sons Co., T. B., Chambersburg, Pa.

**—(Motor and Machine.)**

American Pulley Co., Philadelphia, Pa.

**—(Steel Split.)**

American Pulley Co., Phila., Pa.

**—Shafting and Hangers.**

American Pulley Co., Phila., Pa.  
 Golden's Fdy. & Mch. Co., Columbus, Ga.  
 Wood's Sons Co., T. B., Chambersburg, Pa.

**PULVERIZED COAL EQUIPMENT.**

Combustion Engr. Corp., New York, N. Y.  
 Fuller Lehigh Co., Fullerton, Pa.  
 Whiting Corp., Harvey, Ill.

**PULVERIZERS (See Crushing and Pulverizing Machinery.)****PUMPING MACHINERY.**

Cameron, A. S., Steam Pump Works (Ingersoll-Rand Co.), New York City.

Chas. Belt Co., Milwaukee, Wis.  
 Cook, Inc., A. D., Lawrenceburg, Ind.  
 Fairbanks, Morse & Co., Chicago, Ill.  
 Ingersoll-Rand Co. (A. S. Cameron Steam Pump Works), New York, N. Y.  
 Keystone Pump & Drill Co., Beaver Falls, Pa.

Lullwiler Pumping Engine Co., Rochester, N. Y.  
 Myers & Bro. Co., The F. E., Ashland, Ohio.

National Equipment Corp. (C. H. & E. Division), Milwaukee, Wis.  
 Platt Iron Works, Dayton, Ohio.  
 Union Steam Pump Co., Battle Creek, Mich.

Viking Pump Co., Cedar Falls, Iowa.  
 Virginia Mch. & Well Co., Richmond, Va.

**PUMPS (Air.)**

Manistee Iron Works Co., Manistee, Mich.

**—(Air Lift.)**

Ingersoll-Rand Co., New York, N. Y.  
 Sullivan Machinery Co., Chicago, Ill.

**—(Boiler Feed.)**

Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
 Cameron, A. S., Steam Pump Works (Ingersoll-Rand Co.), New York City.  
 DeLaval Steam Turbine Co., Trenton, N. J.  
 Erie Pump & Engine Wks., Medina, N. Y.  
 Ingersoll-Rand Co. (A. S. Cameron Steam Pump Works), New York, N. Y.  
 Manistee Iron Works Co., Manistee, Mich.  
 Myers & Bro. Co., The F. E., Ashland, O.

**—(Centrifugal.)**

Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
 Cameron, A. S., Steam Pump Works (Ingersoll-Rand Co.), New York City.  
 DeLaval Steam Turbine Co., Trenton, N. J.  
 Erie Pump & Engine Wks., Medina, N. Y.  
 Fairbanks, Morse & Co., Chicago, Ill.  
 Ingersoll-Rand Co. (A. S. Cameron Steam Pump Works), New York, N. Y.  
 Jaeger Machine Co., Columbus, Ohio.  
 Layne & Bowler, Inc., Memphis, Tenn.  
 Manistee Iron Works Co., Manistee, Mich.  
 Morris Machine Wks., Baldwinville, N. Y.  
 Novo Engine Co., Lansing, Mich.  
 Union Steam Pump Co., Battle Creek, Mich.

**—(Contractors.)**

Erie Pump & Engine Wks., Medina, N. Y.  
 Novo Engine Co., Lansing, Mich.

**—(Deep Well.)**

Cook, Inc., A. D., Lawrenceburg, Ind.  
 Keystone Pump and Drill Co., Beaver Falls, Pa.

Layne & Bowler, Inc., Memphis, Tenn.  
 Lullwiler Pumping Engine Co., Rochester, N. Y.  
 Novo Engine Co., Lansing, Mich.

**—(Diaphragm.)**

Novo Engine Co., Lansing, Mich.

**—(Hydraulic.)**

Dunning & Boschert Press Co., Inc., Syracuse, N. Y.

**—(Power.)**

Platt Iron Works, Dayton, Ohio.  
 Sterling Engine Co., Buffalo, N. Y.

**—(Pulverized Coal.)**

Fuller Lehigh Co., Fullerton, Pa.

**—(Rotary.)**

Viking Pump Co., Cedar Falls, Iowa.

**—(Sand and Dredging.)**

Ellieott Machine Corp., Baltimore, Md.  
 Erie Pump & Engine Wks., Medina, N. Y.  
 Georgia Iron Works, Augusta, Ga.

**—(Steam.)**

Cameron, A. S., Steam Pump Works (Ingersoll-Rand Co.), New York City.  
 Emerson Pump & Valve Co., Alexandria, Va.  
 Fairbanks, Morse & Co., Chicago, Ill.  
 Ingersoll-Rand Co. (A. S. Cameron Steam Works), New York, N. Y.  
 Platt Iron Works, Dayton, Ohio.  
 Union Steam Pump Co., Battle Creek, Mich.

**—(Vacuum.)**

Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
 Chicago Pneumatic Tool Co., New York.

Ingersoll-Rand Co., New York, N. Y.  
 Sullivan Machinery Co., Chicago, Ill.

**—(Water Works.)**

Layne & Bowler, Inc., Memphis, Tenn.  
 Manistee Iron Works Co., Manistee, Mich.

**PUNCHING AND SHEARING MACHINERY.**

Bliss Co., E. W., Brooklyn, N. Y.  
 Whitney Metal Tool Co., Rockford, Ill.

**RACK RAKES.**

Newport News Shipbuilding & Drydock Co., Newport News, Va.

**RADIATOR ENCLOSURES.**

Manhattan Perforated Metal Co., Inc., Long Island City, N. Y.

**RAILINGS (Iron Pipe.)**

Pipe Railing Constr. Co., Long Island City, N. Y.

**—and Grilles, Iron and Brass.**

(Banks and Offices.)  
 Ludlow Saylor Wire Co., The St. Louis, Mo.

**RAILROAD Equipment and Supplies (New.)**

Robinson & Orr, Pittsburgh, Pa.  
 Whiting Corp., Harvey, Ill.

**—Equipment and Supplies (Used.)**

Birmingham Rail & Loco. Co., Birmingham.

Equip. Sales & Rentals Co., Pittsburgh.

Levis & Co., Henry, Philadelphia, Pa.  
 Smith & Co., W. M., Birmingham, Ala.

Southern Iron and Equip. Co., Atlanta.  
 Zelnicker Supply Co., W. A., St. Louis.

—(Frogs and Switches.)  
 Bethlehem Steel Co., Bethlehem, Pa.

Frank, M. K., Pittsburgh, Pa.  
 Koppel Ind. Car & Equip. Co., Koppel, Pa.

Robinson & Orr, Pittsburgh, Pa.

**RAILROADS — (Offering Industrial, Agricultural and Commercial Opportunities.)**

Atlanta and West Point R. R., Atlanta.

Central of Georgia Ry., Savannah, Ga.  
 Missouri - Kansas - Texas Lines, Dallas, Texas.

Missouri Pacific Lines, St. Louis, Mo.  
 Model Land Company, Flagler System, St. Augustine, Fla.

Norfolk & Western Railway, Roanoke, Va.  
 Tennessee Central Railway, Nashville, Tenn.

—(Frogs and Switches.)  
 Bethlehem Steel Co., Bethlehem, Pa.

Frank, M. K., Pittsburgh, Pa.  
 Koppel Ind. Car & Equip. Co., Koppel, Pa.

Robinson & Orr, Pittsburgh, Pa.

**RAILS (New and Used.)**

Birmingham Rail & Locomotive Co., Birmingham, Ala.

Carnegie Steel Co., Pittsburgh, Pa.

Frank, M. K., Pittsburgh, Pa.

Levis & Co., Henry, Philadelphia, Pa.

Perry, Buxton, Doane Co., Philadelphia.

Robinson & Orr, Pittsburgh, Pa.

Smith & Co., W. M., Birmingham, Ala.

Southern Iron and Equip. Co., Atlanta, Ga.

Sweet's Steel Co., Williamsport, Pa.

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

Weller & Co., Birmingham, Ala.

Zelnicker Supply Co., W. A., St. Louis.

**RAILWAYS (Industrial.)**

Easton Car & Construction Co., Easton, Pa.

Koppel Ind. Car & Equip. Co., Koppel, Pa.

—(Marine.)  
 Charleston Dry Dock and Machine Co., Charleston, S. C.

**RECEPTACLES (Self-closing — Waste Paper.)**

Whitaker Paper Co., Baltimore, Md.

**REELS and SPOOLS. (Pressed Metal.)**

American Pulley Co., Philadelphia, Pa.

**REFRATORIES.**

Harbison-Walker Refractories Co., Pittsburgh.

North American Refractories Co., Cleveland, Ohio.

Taylor Sons Co., Charles, Cincinnati.

**REFRIGERATING Machinery (See Ice and Refrigerating Machinery and Supplies.)**

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

—(See Ice and Refrigerating Machinery and Supplies.)

Blaw-Knox Co., Pittsburgh, Pa.

Buffalo-Springfield Roller Co., Springfield, O.

Caterpillar Tractor Co., San Leandro, Cal.

Erie Machine Shops, Erie, Pa.

Huber Mfg. Co., The, Marion, Ohio.

Universal Crane Co., Lorain, Ohio.

**—and Street Material.**

Borley & Co., W. W., Roanoke, Va.

Gloss-Sheffield Steel and Iron Co., Birmingham, Ala.

Woodstock Slag Corp., Birmingham, Ala.

**—Graders and Scrapers.**

Acme Road Mchry. Co., Frankfort, N. Y.

Austin-Western Road Mchry. Co., Chicago.

Caterpillar Tractor Co., San Leandro, Cal.

—(Oils and Preservatives.)  
 Gulf Refining Co., Pittsburgh, Pa.

**—Reinforcement (Welded Fabric.)**

American Steel & Wire Co., Balto., Md.

—(Rollers (Steam and Gasoline.)  
 Acme Road Mchry. Co., Frankfort, N. Y.

Austin-Western Road Mchry. Co., Chicago.

Buffalo-Springfield Roller Co., Springfield, O.

Erie Machine Shops, Erie, Pa.

Huber Mfg. Co., The, Marion, Ohio.

—(Rollers (For Concrete Work.)  
 Macon Concrete Roller Co., Macon, Ga.

—(Scarifiers.)  
 Austin-Western Road Mchry. Co., Chicago.

Buffalo-Springfield Roller Co., Springfield, O.

**ROOFING (Ready Prepared, Felt, Tar, Asbestos, Asphalt.)**

Ambler Asbestos Shingle & Sheathing Co., Ambler, Pa.

Eternit, Inc., St. Louis, Mo.

—(and Siding (Composition.)  
 Eternit, Inc., St. Louis, Mo.

—(and Siding (Metal.)  
 American Rolling Mill Co., Middletown, O.

American Sheet and Tin Plate Co., Pittsburgh, Pa.

Milcor Steel Co., Milwaukee, Wis.

Moschell-Edwards Corr. Co., Cincinnati, O.

Republic Steel Corp., Youngstown, Ohio.

Robertson Co., H. H., Pittsburgh.

Ryerson & Son, Jos. T., St. Louis and New York.

Youngtown Sheet and Tube Co., Youngstown, O.

—(Tile, Cement (Interlocking Flat, Channel Glass.)  
 American Cement Tile Mfg. Co., Pittsburgh, Pa.

—(Tiles.)  
 Amer. Cement Tile Mfg. Co., Pittsburgh.

**ROPE (Manila, Sisal, Hemp, etc.)**

Broderick & Bascom Rope Co., St. Louis.

**—Drives.**

Wood's Sons Co., T. B., Chambersburg, Pa.

**RULES (Steel.)**

Lufkin Rule Co., Saginaw, Mich.

**SAND.**

Arundel Corp., Baltimore, Md.

Friend & Co., Inc., Petersburg, Va.

**SANITARY Drinking Fountains.**

Rundle-Spence Mfg. Co., Milwaukee, Wis.

**SASH (Industrial.)**

Detroit Steel Products Co., Detroit, Mich.

**—(Operating Devices.)**

Detroit Steel Products Co., Detroit, Mich.

—(Steel.)  
 Detroit Steel Products Co., Detroit, Mich.

—(Steel, Basement, Ventilating.)  
 Detroit Steel Products Co., Detroit, Mich.

**SAWMILL Machinery.**

Schofield's Sons Co., J. S., Macon, Ga.

**SAW RIGS.**

National Equipment Corp. (C. H. & E. Division), Milwaukee, Wis.

**SAWS. (Cold Metal.)**

Earle Gear and Machine Co., Phila., Pa.

—(Portable, Electric, Hand.)  
 Wappat, Incorporated, Pittsburgh, Pa.

**SCAFFOLDING (Wooden.)**

Patent Scaffolding Co., Chicago, Ill.

**SCALES (Industrial, Platform.)**

American Iron Scale Co., New York City.

## —(Textile.)

American Kren Seals Co., New York City.

**SCHOOLS (Correspondence.)**

International Correspondence Schools, Scranton, Pa.

**SCOOPS (Hand.)**

American Mfg. Co., Chattanooga, Tenn.

## —(Wheeled.)

Riddell Co., W. A., Bucyrus, Ohio.

**SCRAPERS (Drag and Wheel.)**

Austin-Western Road Machy. Co., Chicago.

Bauerman Bros., Chicago, Ill.

**SCRAP IRON AND STEEL.**

Hunts Bros. M. J., Philadelphia, Pa.

Perry, Buxton, Doane Co., Philadelphia.

Smith &amp; Co., W. M., Birmingham, Ala.

**SCREENING (For Concrete and Road Construction.)**

American Limestone Co., Knoxville, Tenn.

**SCREENS (Sand, Gravel, Stone, Coal, Ore, etc.)**

Chicago Perforating Co., Chicago, Ill.

Erdie Perforating Co., Rochester, N. Y.

Hendrick Mfg. Co., Carbondale, Pa.

Ludlow Saylor Wire Co., The St. Louis, Mo.

McLanahan-Stone Machine Co., Hollidaysburg, Pa.

Mundt &amp; Sons, Charles, Jersey City, N. J.

Universal Crusher Co., Cedar Rapids, Iowa.

**SCREW-Machine Products.**

Progressive Mfg. Co., Torrington, Conn.

**SCREWS (Machine.)**

Progressive Mfg. Co., Torrington, Conn.

**SEAWALLS.**

Shore-Line Builders, Inc., Jacksonville, Fla.

**SEPARATORS (Dust.)**

Raymond Bros., Impact Pulv. Co., Chicago.

**SEWAGE Disposal Apparatus.**

Pacific Flush-Tank Co., New York, N. Y.

**SEWER Joint Compounds.**

Pacific Flush-Tank Co., New York, N. Y.

## —(Pipe (Vitrified).)

Bannon Pipe Co., Louisville, Ky.

Cambria Clay Products Co., Blackfork, O.

Dee Co., Wm. E., Oak Hill, Ohio.

Lee Clay Products Co., Clearfield, Ky.

Owensboro Sewer Pipe Co., Owensboro, Ky.

**SEWER PIPE MACHINERY (Concrete.)**

Quinn Wire &amp; Iron Works, Boone, Iowa.

**SHADES (Offset.)**

Hough Shade Corp., Chicago, Ill.

**SHAFTING.**

Byerson &amp; Sons, Inc., Jos. T., St. Louis and New York.

## —(Cold Rolled.)

Bliss &amp; Laughlin, Inc., Harvey, Ill.

## —(Flexible.)

Strand &amp; Co., N. A., Chicago, Ill.

## —(Material (Tubular).)

National Tube Co., Pittsburgh, Pa.

**SHARPENING Stones.**

Carborundum Co., Niagara Falls, N. Y.

**SHEET Metal Work.**

National Blow Pipe &amp; Mfg. Co., Ltd., New Orleans, La.

Shinner Bros. Mfg. Co., St. Louis, Mo.

## —(Metal Working Machinery.)

Bliss Co., E. W., Brooklyn, N. Y.

Whitney Metal Tool Co., Rockford, Ill.

Yoder Co., The, Cleveland, Ohio.

## —(Steel and Iron.)

American Rolling Mill Co., Middletown, O.

American Sheet and Tin Plate Co., Pittsburgh, Pa.

Bethlehem Steel Co., Bethlehem, Pa.

Granite City Steel Co., Granite City, Ill.

Gulf States Steel Co., Birmingham, Ala.

Republic Steel Corp., Youngstown, Ohio.

Byerson &amp; Sons, Inc., Jos. T., St. Louis and New York.

Tennessee Coal, Iron &amp; Railroad Co., Birmingham, Ala.

Youngstown Sheet &amp; Tube Co., Youngstown, O.

**SHEETS (Asbestos.)**

Ambler Asbestos Shingle &amp; Sheathing Co., Ambler, Pa.

Eternit, Inc., St. Louis, Mo.

## —(Steel—Asbestos Covered.)

Robertson Co., H. H., Pittsburgh, Pa.

**SHELVING (Unit.)**

Lupton's Sons Co., David, Phila., Pa.

**SHINGLES (Asbestos.)**

Ambler Asbestos Shingle &amp; Sheathing Co., Ambler, Pa.

Eternit, Inc., St. Louis, Mo.

## —(Stain.)

Cabot, Inc., Samuel, Boston, Mass.

**SHIPPING CARTONS (Corrugated Paper.)**

Hinde &amp; Dauch Paper Co., Sandusky, O.

**SHOVELS (Hand.)**

American Mfg. Co., Chattanooga, Tenn.

## —(Steam, Gas and Electric Power.)

Bucyrus-Erie Co., Erie, Penna.

Harnischfeger Corp., Milwaukee, Wis.

Industrial Brownell Corp., Cleveland, O.

National Equipment Corp. (Koehring, Insley), Milwaukee, Wis.

Northwest Engineering Co., Chicago, Ill.

Ohio Power Shovel Co., Lima, Ohio.

Thew Shovel Co., The, Lorain, Ohio.

Universal Power Shovel Co., Milwaukee, Wis.

**SHUTTERS (Steel.)**

Merchant &amp; Evans Co., Philadelphia, Pa.

## —(Steel and Wood Bifolding.)

Kinnear Mfg. Co., The, Columbus, Ohio.

**SILICATE OF SODA.**

Grasselli Chemical Co., Inc., Birmingham, Ala.

**SITES (Manufacturing.)**

Alabama Power Co., Birmingham, Ala.

Arkansas Natural Gas Corp., Shreveport, La.

Atlanta and West Point R. R., Atlanta.

Brown &amp; Co., Chattanooga, Tenn.

Central of Georgia Rwy., Savannah, Ga.

Central Power &amp; Light Co., San Antonio.

Fort Worth Chamber of Commerce, Fort Worth, Texas.

Galveston City of, Galveston, Texas.

Georgia Power Co., Atlanta, Ga.

Jacksonville, City of Jacksonville, Florida.

Missouri-Kansas-Texas Lines, Dallas, Texas.

Missouri Pacific Line, St. Louis, Mo.

Model Land Company, (Flagler System), St. Augustine, Fla.

Norfolk &amp; Western Railway, Roanoke, Va.

Tennessee Central Railway, Nashville, Tenn.

Texas Power &amp; Light Co., Dallas, Texas.

**SKYLIGHTS.**

Milnor Steel Co., Milwaukee, Wis.

Robertson Co., H. H., Pittsburgh, Pa.

**SLABS (Concrete Floor.)**

American Cement Tile Mfg. Co., Pittsburgh, Pa.

## —(Concrete Roof.)

American Cement Tile Mfg. Co., Pittsburgh, Pa.

**SLAG, For Concrete.**

Gloss-Sheffield Steel and Iron Co., Birmingham, Ala.

Woodstock Slag Corp., Birmingham, Ala.

## —(Furnace.)

Gloss-Sheffield Steel and Iron Co., Birmingham, Ala.

Woodstock Slag Corp., Birmingham, Ala.

**SLINGS (Chain.)**

Woodhouse Chain Works, Trenton, N. J.

## —(Wire Rope.)

Roehling's Sons Co., John A., Trenton, N. J.

**SLUICE GATES AND APPLIANCES.**

Smith Co., S. Morgan, York, Pa.

**SNATCH BLOCKS (For Wire and Manila Rope.)**

Patterson Co., W. W., Pittsburgh.

**SPADES.**

American Mfg. Co., Chattanooga, Tenn.

**SPEED REDUCERS.**

Earle Gear &amp; Mach. Co., Phila., Pa.

Morse Chain Co., Ithaca, N. Y.

**SPIKES (Railroad, Ship.)**

Bethlehem Steel Co., Bethlehem, Pa.

Republic Steel Corp., Youngstown, Ohio.

Sweet's Steel Co., Williamsport, Pa.

**SPINNINGS (Metal for Aircraft.)**

Benson Brass &amp; Chandelier Works, Kansas City, Mo.

**SPRINGS (Machinery, Railway, Spiral Steel.)**

American Steel &amp; Wire Co., Balto., Md.

## —(Wire—All Kinds.)

American Steel &amp; Wire Co., Balto., Md.

**SPRINKLERS (Automatic Fire.)**

Grinnell Co., Inc., Providence, R. I.

**SPROCKETS.**

Diamond Chain &amp; Mfg. Co., Indianapolis.

Morse Chain Co., Ithaca, N. Y.

**STACKS (Iron and Steel.)**

Biggs Boiler Works Co., Akron, Ohio.

Chattanooga Boiler &amp; Tank Co., Chattanooga, Tenn.

Chicago Bridge and Iron Works, Atlanta.

Downingtown Iron Wks., Downingtown, Pa.

Hammond Iron Works, Warren, Pa.

Hedges Walsh Weldner Co., Chattanooga, Tenn.

Ingalls Iron Works Co., Birmingham, Ala.

Lombard Iron Works &amp; Supply Co., Augusta, Ga.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Schofield's Sons Co., J. S., Macon, Ga.

U. S. Pipe &amp; Foundry Co., Burlington, N. J.

Virginia Bridge &amp; Iron Co., Roanoke, Va.

**STAINS (Shingle, Woodwork.)**

Cabot, Inc., Samuel, Boston, Mass.

**STAIR Steps (Safety.)**

Irving Iron Works Co., Long Is. City, N.Y.

## —(Treads.)

Bates Steel Corp., Walter, Gray, Ind.

Central Iron &amp; Steel Co., Harrisburg, Pa.

**STAMPING (Sheet Metal.)**

American Pulley Co., Philadelphia, Pa.

## —(Steel (All Kinds).)

Commercial Shearing &amp; Stamping Co., Youngstown, Ohio.

**STANDPIPES.**

Chattanooga Boiler &amp; Tank Co., Chattanooga, Tenn.

Chicago Bridge &amp; Iron Works, Atlanta, Ga.

Hammond Iron Works, Warren, Pa.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

**STATIONERS (Envelopes, Letter and Billheads, etc.)**

Smith &amp; Son Co., Oscar T., Baltimore, Md.

Young &amp; Selden Co., Baltimore, Md.

**STEAM SHOVELS.**

Bucyrus-Erie Co., Erie, Pa.

Thew Shovel Co., The, Lorain, Ohio.

**STEAM (Specialties.)**

Jenkins Bros., New York, N. Y.

Lunkenheimer Co., The, Cincinnati, O.

Mueller Co., Decatur, Ill.

## —(Traps.)

Jenkins Bros., New York, N. Y.

**STEEL.**

Bethlehem Steel Co., Bethlehem, Pa.

Central Iron &amp; Steel Co., Harrisburg, Pa.

Dietrich Brothers, Baltimore, Md.

Gulf States Steel Co., Birmingham, Ala.

Republic Steel Corp., Youngstown, Ohio.

Byerson &amp; Sons, Inc., Jos. T., St. Louis and New York.

Tennessee Coal, Iron &amp; Railroad Co., Birmingham, Ala.

Virginia Bridge &amp; Iron Co., Roanoke, Va.

## —(Alloy.)

Timken Roller Bearing Co., Canton, Ohio.

Bliss &amp; Laughlin, Inc., Harvey, Ill.

—(Cold Drawn.)

Bliss &amp; Laughlin, Inc., Harvey, Ill.

—(Cold Rolled.)

American Steel &amp; Wire Co., Balto., Md.

Bliss &amp; Laughlin, Inc., Harvey, Ill.

## —(Information Only.)

American Institute of Steel Construction, Inc., New York City.

## —(Special Analysis.)

Timken Roller Bearing Co., Canton, Ohio.

—(Tool, High Speed.)

Bethlehem Steel Co., Bethlehem, Pa.

## —(Buildings (Designers and Builders).)

American Bridge Co., New York, N. Y.

Belmont Iron Works, Philadelphia, Pa.

Braden Steel Corp., Tulsa, Okla.

Butler Mfg. Co., Kansas City, Mo.

Carolina Steel &amp; Iron Co., Greensboro, N. C.

Champion Bridge Co., Wilmington, O.

Eichleay, Jr. Co., John, Pittsburgh.

Ingalls Iron Works Co., Birmingham, Ala.

McClintic-Marshall Co., Pittsburgh, Pa.

Phoenix Iron Co., The, Phila., Pa.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Richmond Struc. Steel Co., Richmond, Va.

Virginia Bridge &amp; Iron Co., Roanoke, Va.

—(Forms (Curb, Gutter, Side-walk, Road).)

Blaw-Knox Co., Pittsburgh, Pa.

—(Plate Construction (Riveted or Welded).)

Biggs Boiler Works Co., Akron, Ohio.

Birmingham Boiler &amp; Engr. Co., Birmingham, Ala.

Bristol Steel &amp; Iron Works, Inc., Bristol, Va.

Carolina Steel &amp; Iron Co., Greensboro, N. C.

Central Iron &amp; Steel Co., Harrisburg, Pa.

Chattanooga Boiler &amp; Tank Co., Chattanooga, Tenn.

Chicago Bridge &amp; Iron Works, Atlanta, Ga.

Combustion Engr. Corp., New York City.

Hammond Iron Works, Warren, Pa.

Hedges Walsh Weldner Co., Chattanooga, Tenn.

Ingalls Iron Works Co., Birmingham, Ala.

Phoenix Iron Co., The, Phila., Pa.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

**STOKERS (Mechanical.)**

Babcock &amp; Wilcox Co., The, New York.

Combustion Engr. Corp., New York City.

Whiting Corp., Harvey, Ill.

**STORAGE Batteries.**

Electric Storage Battery Co., Philadelphia.

## —(Bins (Steel).)

Blaw-Knox Co., Pittsburgh, Pa.

**STRIPS (Steel.)**

American Steel &amp; Wire Co., Baltimore.

**STRUCTURAL STEEL (Hot Galvanized.)**

Bessemer Galvanizing Works, Birmingham.

## —(and Iron.)

American Bridge Co., New York, N. Y.

Belmont Iron Works, Philadelphia, Pa.

Bristol Steel &amp; Iron Works, Inc., Bristol, Va.

Carnegie Steel Co., Pittsburgh, Pa.

Carolina Steel &amp; Iron Co., Greensboro, N. C.

Champion Bridge Co., Wilmington, Ohio.

Chattanooga Boiler &amp; Tank Co., Chattanooga, Tenn.

Converse Bridge &amp; Steel Co., Chattanooga, Tenn.

Dietrich Brothers, Baltimore, Md.

Eichleay, Jr. Co., John, Pittsburgh.

Erie Steel Constr. Co., Erie, Pa.

Ingalls Iron Works Co., Birmingham, Ala.

McClintic-Marshall Co., Pittsburgh, Pa.

Nashville Bridge Co., Nashville, Tenn.

Phoenix Iron Co., The, Phila., Pa.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Republic Steel Corp., Youngstown, Ohio.

Richmond Struc. Steel Co., Richmond, Va.

Roanoke Iron &amp; Bridge Works, Inc., Roanoke, Va.

Byerson &amp; Sons, Inc., Jos. T., St. Louis and New York.

Snead Architectural Iron Works, Louisville, Ky.

Southern Engineering Co., Charlotte, N. C.

Tennessee Coal, Iron &amp; Railroad Co., Birmingham, Ala.

Virginia Bridge &amp; Iron Co., Roanoke, Va.

**SULPHATE OF ALUMINA.**

Grasselli Chemical Co., Inc., Birmingham, Ala.

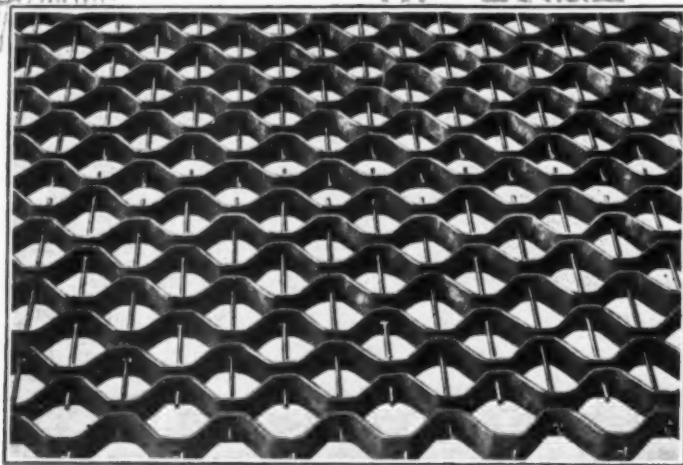
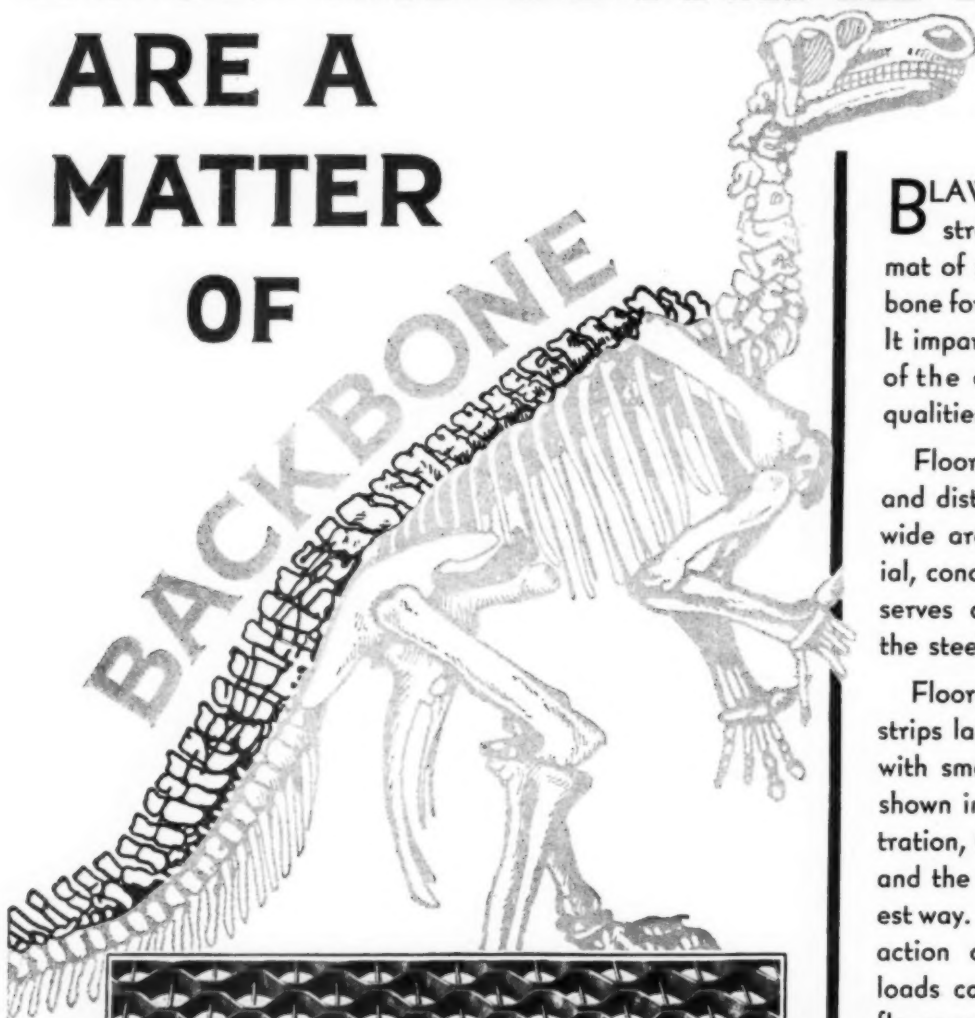
**SULPHIDE OF SODA.**

Grasselli Chemical Co., Inc., Birmingham, Ala.

**SULPHURIC ACID.**

- TANKS (Air Compressor.)**  
Air-Tight Steel Tank Co., Pittsburgh, Pa.  
Seale & Sons, Wm. B., Oakmont, Pa.  
Titusville Iron Works Co., Titusville, Pa.
- (Elevated Steel.)  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Chicago Bridge & Iron Works, Atlanta, Ga.  
Cole Mfg. Co., R. D., Newnan, Ga.  
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.  
Schnefeld's Sons Co., J. S., Macon, Ga.  
Virginia Bridge & Iron Co., Roanoke, Va.
- (Elevated Wood.)  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Davis & Son, G. M., Palatka, Fla.  
Woodford Wood Tank Mfg. Co., G., Paschall P. O., Philadelphia, Pa.
- (Iron and Steel.)  
Air-Tight Steel Tank Co., Pittsburgh, Pa.  
American Bridge Co., New York, N. Y.  
Biggs Boiler Works Co., Akron, Ohio.  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Chicago Bridge & Iron Works, Atlanta, Ga.  
Cole Mfg. Co., R. D., Newnan, Ga.  
Downingtown Iron Works, Downingtown, Pa.  
Hammond Iron Works, Warren, Pa.  
Lombard Iron Works & Supply Co., Augusta, Ga.  
McClintic-Marshall Co., Pittsburgh, Pa.  
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.  
Seale & Sons, Wm. B., Oakmont, Pa.  
Schnefeld's Sons Co., J. S., Macon, Ga.  
Titusville Iron Works Co., Titusville, Pa.  
Virginia Bridge & Iron Co., Roanoke, Va.  
Westinghouse Traction Brake Co., Wilmerding, Pa.
- (Seamless Steel.)  
Janney, Jr., Jos. A., Phila., Pa.  
National Tube Co., Pittsburgh, Pa.
- (Storage, Oil, etc.)  
Biggs Boiler Works, Akron, Ohio.  
Birmingham Boiler & Engr. Co., Birmingham, Ala.  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Chicago Bridge & Iron Works, Atlanta, Ga.  
Downingtown Iron Works, Downingtown, Pa.  
Hammond Iron Works, Warren, Pa.  
Ingalls Iron Works Co., Birmingham, Ala.  
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.  
Titusville Iron Works Co., Titusville, Pa.
- (Welded.)  
Welded Products Co. of La., Inc., New Orleans, La.
- (Wood.)  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Davis & Son, G. M., Palatka, Fla.  
Virginia Mch. & Well Co., Richmond, Va.  
Woodford Wood Tank Mfg. Co., G., Paschall P. O., Philadelphia, Pa.
- (Wood Pickling.)  
Woodford Wood Tank Mfg. Co., G., Paschall P. O., Philadelphia, Pa.
- TAPE (Insulating.)**  
Okonite Co., New York, N. Y.
- (Measuring.)  
Lufkin Rule Co., Saginaw, Mich.
- TAX SPECIALISTS.**  
Ernst & Ernst, New York, N. Y.  
Harrison, Wm. Henry, Washington, D. C.  
Le Baron, E. T., Jacksonville, Fla.
- TELEPHONE SERVICE.**  
American Telephone & Telegraph Co.
- TERRA COTTA (Ornamental.)**  
Atlanta Terra Cotta Co., Atlanta, Ga.
- TEXTILE CHEMICALS.**  
Grasselli Chemical Co., Inc., Birmingham, Ala.
- TILE (Cement Roofing.)**  
American Cement Tile Mfg. Co., Pittsburgh, Pa.
- (Cork Composition.)  
Congoleum-Nairn Inc., Kearny, N. J.
- (Cork Flooring.)  
Congoleum-Nairn Inc., Kearny, N. J.
- (Floor.)  
Hood Co., B. Mifflin, Daisy, Tenn.
- (Hollow Building.)  
Cambria Clay Products Co., Blackfork, Ohio.
- (Roof.)  
Hood Co., B. Mifflin, Daisy, Tenn.
- (Sewer.)  
Lee Clay Products Co., Clearfield, Ky.
- TIMBER Fittings.**  
Duplex Hanger Co., Cleveland, Ohio.
- (Creosoted.)  
Amer. Creosote Wks., Inc., New Orleans.  
Amer. Creosoting Co., Inc., Louisville, Ky.  
Carolina Wood Preserving Co., Charleston, S. C.
- TIME Recorders.**  
Kaiser Klock Co., L. E., Baltimore, Md.
- TIN AND TERNE PLATES.**  
American Sheet & Tin Plate Co., Pittsburgh, Pa.  
Bethlehem Steel Co., Bethlehem, Pa.  
Granite City Steel Co., Granite City, Ill.  
Youngstown Sheet & Tube Co., Youngstown, Ohio.
- TOBACCO MACHINERY.**  
Ripley Foundry & Machine Co., Ripley, O.
- TOILET TISSUE.**  
Victoria Paper Mills Co., Fulton, N. Y.
- TOOLS (Measuring.)**  
Lufkin Rule Co., Saginaw, Mich.
- (Woodworking—Portable.)  
Electric, Hand.)  
Wappat, Incorporated, Pittsburgh, Pa.
- TORCHES (Blow.)**  
Wall Mfg. Supply Co., P., Pittsburgh, Pa.
- TOWERS (Electric Transmission.)**  
American Bridge Co., New York, N. Y.  
Bates Steel Corp., Walter, Gray, Ind.  
Bessemer Galvanizing Works, Birmingham, Ala.  
Nashville Bridge Co., Nashville, Tenn.
- (Radio.)  
Bessemer Galv. Wks., Birmingham, Ala.
- (Steel and Wood.)  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Cole Mfg. Co., R. D., Newnan, Ga.
- TRACK (Portable or Permanent.)**  
Sweet's Steel Co., Williamsport, Pa.
- TRACTORS (Industrial.)**  
Atlas Car & Mfg. Co., The, Cleveland, O.  
Caterpillar Tractor Co., San Leandro, Cal.  
Clark Tractor Co., Battle Creek, Mich.  
Cleveland Tractor Co., Cleveland, Ohio.  
International Harvester Co., of America, Inc., Chicago, Ill.
- (Road.)  
Caterpillar Tractor Co., San Leandro, Cal.  
Cleveland Tractor Co., Cleveland, Ohio.
- (Attachments (Side Boom.)  
W-K-M Co., Inc., Houston, Texas.
- TRAILERS (Four Wheel.)**  
Electric Wheel Co., Quincy, Ill.
- (Heavy Duty.)  
Electric Wheel Co., Quincy, Ill.
- (Industrial.)  
Easton Car & Construction Co., Easton, Pa.
- (Fole.)  
Electric Wheel Co., Quincy, Ill.
- TRAMWAYS (Aerial Wire Rope.)**  
American Steel & Wire Co., Balto., Md.  
Broderick & Bascom Rope Co., St. Louis.  
Leschen & Sons Rope Co., A., St. Louis.
- TRANSFORMERS.**  
General Electric Co., Schenectady, N. Y.  
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.
- (Used.)  
Electric Service Co., Cincinnati, Ohio.
- TRANSMISSION TOWERS (Galvanized.)**  
Bates Steel Corp., Walter, Gray, Ind.  
Bessemer Galvanizing Works, Birmingham, Ala.  
McClintic-Marshall Co., Pittsburgh, Pa.
- TRENCH MACHINERY. See**  
Excavators (Trench.)
- TRESTLES (Wooden.)**  
Patent Scaffolding Co., Chicago, Ill.
- TRI-SODIUM PHOSPHATE.**  
Grasselli Chemical Co., Inc., Birmingham, Ala.
- TROLLEY WHEELS (Self Oiling.)**  
Moccasin Bushing Co., Chattanooga, Tenn.
- TRUCK CRANES.**  
Universal Crane Co., Lorain, O.
- TRUCKS (Dry Kiln.)**  
Moore Dry Kiln Co., Jacksonville, Fla.
- (Industrial.)  
Atlas Car & Mfg. Co., The, Cleveland, O.  
Lansing Co., Lansing, Mich.  
Nutting Truck Co., Chicago, Ill.
- (Motor.)  
International Harvester Co., of America, Inc., Chicago, Ill.
- (Platform, Freight, Mill, Factory, etc.)  
American Pulley Co., Philadelphia, Pa.  
Clark Tractor Co., Battle Creek, Mich.  
Electric Wheel Co., Quincy, Ill.  
Nutting Truck Co., Chicago, Ill.
- (Steel Shop.)  
Angle Steel Shop Co., Plainwell, Mich.
- TUBES (Boiler.) See** Boiler Tubes.
- TUBING (Metal.)**  
Boiler Tube Co., of America, Pittsburgh.
- (Seamless Steel.)  
National Tube Co., Pittsburgh, Pa.  
Timken Rolling Bearing Co., Canton, O.
- TURBINES (Hydraulic.)**  
Cook, Inc., A. D., Lawrenceburg, Ind.  
Davis Foundry & Mach. Works, Rome, Ga.  
Lafel & Co., The, James, Springfield, O.  
Smith Co., S. Morgan, York, Pa.
- (Steam.)  
Allis-Chalmers Mfg. Co., Milwaukee, Wis.  
DeLaval Steam Turbine Co., Trenton, N. J.  
General Electric Co., Schenectady, N. Y.  
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.
- TURNBUCKLES.**  
Russell, Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.
- TURNABLES.**  
American Bridge Co., New York, N. Y.  
Easton Car & Construction Co., Easton, Pa.  
Virginia Bridge & Iron Co., Roanoke, Va.
- (Portable for Motor Trucks.)  
Blaw-Knox Co., Pittsburgh, Pa.
- UNIONS.**  
Dart Mfg. Co., E. M., Providence, R. I.
- UNIT HEATERS.**  
Grinnell Co., Inc., Providence, R. I.  
Skinner Bros., Mfg. Co., St. Louis, Mo.
- VALVES.**  
Jenkins Bros., New York, N. Y.  
Ludlow Valve Mfg. Co., The, Troy, N. Y.  
Lunkenheimer Co., The, Cincinnati, Ohio.  
Merco Nordstrom Valve Co., San Francisco, Cal.  
Mueller Co., Decatur, Ill.  
Vogt Brothers Mfg. Co., Louisville, Ky.  
Westinghouse Traction Brake Co., Wilmerding, Pa.
- (Acid Proof.)  
Lunkenheimer Co., The, Cincinnati, O.
- (Gate.)  
Ludlow Valve Mfg. Co., The, Troy, N. Y.  
Lunkenheimer Co., The, Cincinnati, Ohio.  
Wood & Co., R. D., Philadelphia, Pa.
- VENTILATING SYSTEMS.**  
Skinner Bros. Mfg. Co., St. Louis, Mo.
- VENTILATORS (Roof.)**  
Merchant & Evans Co., Philadelphia, Pa.  
Milcor Steel Co., Milwaukee, Wis.  
Robertson Co., H. H., Pittsburgh, Pa.
- WADDING (Crepe, for package protection.)**  
Kimberly Clark Corp., Chicago, Ill.
- WALL HANGERS.**  
Duplex Hanger Co., Cleveland, Ohio.
- WARDROBES (Hygienic, School.)**  
Wilson Corp., The, J. G., New York.
- WATCHMAN'S PORTABLE CLOCKS.**  
Davis-Paradise Watchman's Clock Corp., New York, N. Y.  
Kaiser Klock Co., L. E., Balto., Md.
- WATERPROOFING (For Brick, Concrete, Granite.)**  
Asphalt Products Co., Syracuse, N. Y.  
Foster Co., Benjamin, Philadelphia, Pa.  
Sennepson, Sons, Inc., L., New York.
- WATER Purification.**  
Roberts Filter Mfg. Co., Darby (Phila.), Pa.  
Seale & Sons, Wm. B., Oakmont, Pa.
- Softening Apparatus (Purifying.)  
American Water Softener Co., Phila., Pa.  
International Filter Co., Chicago, Ill.
- Works Supplies and Appliances.  
Amer. Cast Iron Pipe Co., Birmingham.  
Cast Iron Pipe Research Assn., Chicago.
- Cook, Inc., A. D., Lawrenceburg, Ind.  
Glanorgan Pipe & Fdry. Co., Lynchburg, Va.  
Leadite Co., The, Philadelphia, Pa.  
Mueller Co., Decatur, Ill.  
U. S. Pipe & Foundry Co., Burlington, N. J.  
Wood & Co., R. D., Philadelphia, Pa.
- WELDING APPARATUS (Electric Arc.)**  
General Electric Co., Schenectady, N. Y.  
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.
- WELL CONTRACTORS (Oil, Artesian, etc.)**  
Virginia Mch. & Well Co., Richmond, Va.
- WHEELBARROWS.**  
Lansing Co., Lansing, Mich.  
Sterling Wheelbarrow Co., Milwaukee.
- WHEELS AND AXLES.**  
Carnegie Steel Co., Pittsburgh, Pa.
- WINCHES.**  
Saagen Derrick Co., Chicago, Ill.  
Schultz & Son, A. L., Chicago, Ill.
- WINDOW Frames and Sash (Metal.)**  
Bayley Co., The, William, Springfield, O.  
Lupton's Sons Co., David, Phila., Pa.
- WINDOWS (Bronze Casement.)**  
Michael's Art Bronze Co., Covington, Ky.
- (Steel Basement, Casement.)  
Bayley Co., The, William, Springfield, O.  
Detroit Steel Products Co., Detroit, Mich.  
Lupton's Sons Co., David, Phila., Pa.  
Milcor Steel Co., Milwaukee, Wis.
- (Steel Garage.)  
Detroit Steel Products Co., Detroit, Mich.  
Lupton's Sons Co., David, Phila., Pa.
- (Steel Pivoted, Screened.)  
Bayley Co., William, Springfield, O.
- (Ventilating.)  
Bayley Co., The, William, Springfield, O.  
Detroit Steel Products Co., Detroit, Mich.  
Lupton's Sons Co., David, Phila., Pa.
- WIRE (All Kinds.)**  
American Steel & Wire Co., Chicago.  
Roebbing's Sons Co., John A., Trenton, N. J.  
Ryerson & Son, Inc., Jos. T., St. Louis and New York.
- (Barbed Wire, etc.)  
American Steel & Wire Co., Balto., Md.  
Gulf States Steel Co., Birmingham, Ala.  
Youngstown Sheet & Tube Co., Youngstown, Ohio.
- (Fence.)  
Anchor Post Fence Co., Baltimore, Md.  
Cyclone Fence Co., Waukegan, Ill.  
Page Fence Association, Chicago, Ill.
- (Flat and Round.)  
American Steel & Wire Co., Balto., Md.
- (Galvanized and Annealed.)  
American Steel & Wire Co., Balto., Md.  
Gulf States Steel Co., Birmingham, Ala.
- (Telephone and Telegraph.)  
American Steel & Wire Co., Balto., Md.
- (Welding.)  
American Steel & Wire Co., Chicago, Ill.  
Roebbing's Sons Co., John A., Trenton, N. J.
- Cloth (Iron, Steel, Copper, Brass, etc.)  
Harrington & King Perf. Co., Chicago.  
Ludlow Saylor Wire Co., The, St. Louis, Mo.
- Goods.  
Cyclone Fence Co., Waukegan, Ill.
- Netting.  
Ludlow Saylor Wire Co., The, St. Louis, Mo.
- Rope (Transmission, Hoisting, Haulage.)  
American Steel & Wire Co., Chicago, Ill.  
Broderick & Bascom Rope Co., St. Louis.  
Leschen & Sons Rope Co., A., St. Louis.  
Roebbing's Sons Co., John A., Trenton, N. J.
- Rope Clips.  
American Steel & Wire Co., Balto., Md.  
Broderick & Bascom Rope Co., St. Louis.
- WOOD (Preserved.)**  
Delaware Wood Preserving Co., Phila.
- WOODWORKING MACHINERY.**  
Wappat, Incorporated, Pittsburgh, Pa.
- ZINC CHLORIDE.**  
Grasselli Chemical Co., Inc., Birmingham, Ala.
- ZINC META ARSENITE (Wood Preservative.)**  
Curtin-Hove Corp., New York City.  
Gulf States Creos. Co., Hattiesburg, Miss.

# GOOD INDUSTRIAL FLOORS ARE A MATTER OF



**B**LAW-KNOX Floorgard is a strengthening and protecting mat of steel mesh forming a backbone for concrete or mastic floors. It imparts to the floor surface all of the durability and wearing qualities of steel.

Floorgard takes the floor load and distributes it properly over a wide area. The flooring material, concrete, asphalt or otherwise, serves as a filler and binder for the steel mesh.

Floorgard is made up of steel strips laced together on the job with small circular steel rods. As shown in the accompanying illustration, the mat is placed on edge and the steel used in the strongest way. It eliminates the abrasive action of trucks, absorbs overloads caused by impacts, makes floors permanent under exposure to extreme heat, is economical and easy to install.

Blaw-Knox Floorgard makes possible for the first time in the history of industrial flooring a really satisfactory surface that will last indefinitely in its original smooth and unbroken state.

F L O O R G A R D



The BACKBONE OF  
THE FLOOR

# BLAW-K

**BLAW-KNOX COMPANY**

2024 Farmers Bank Bldg., Pittsburgh, Pa.

Send me a free sample and  
Catalog of **BLAW-KNOX FLOORGARD**

NAME .....

COMPANY .....

STREET .....

CITY .....

STATE .....

# KNOX

## Alphabetical Index of Advertisements

## A

<b>A</b>	
Abendroth & Root Mfg. Co.	24
Acme Road Machinery Co.	93
Adam Electric Co., Frank	21
Airmap Corp. of America	24
Air-Tight Steel Tank Co.	24
Akers, William	83
Alabama Clay Products Co.	30
Alabama Power Co.	87
Albert & Davidson Pipe Corp.	87
Albert Pipe Supply Co.	87
Allen, Charles S.	
Allen-Sherman-Hoff Co.	
Allis-Chalmers Mfg. Co.	28
Alpaugh & Sons, Chas. W.	28
Alpha Portland Cement Corp.	
Aluminum Co. of America	
Ambler Asbestos Shingle & Sheathing Co.	
American Bridge Co.	31
American Cast Iron Pipe Co.	24
American Cement Tile Mfg. Co.	17
American Crescent Works	23
American Crescoing Co.	
American Elevator & Machine Co.	17
American Gas Association	
American Institute of Steel Construction, Inc.	
American Kron Scale Co.	
American Limestone Co.	91
American Manufacturing Co.	
American Pipe Bending Machine Co.	24
American Pressed Steel Co.	10
American Process Co.	27
American Pulley Co.	
American Rolling Mill Co.	
American Sheet & Tin Plate Co.	
American Steel & Wire Co.	
American Steel Dredge Co.	90
American Telephone & Telegraph Co.	
American Water Softener Co.	
Anchor Post Fence Co.	
Andrews Co., A. H.	18
Angle-Blackford Co.	24
Angle Steel Stool Co.	
Arkansas Natural Gas Corp.	
Armco Culvert Mfrs. Assn.	
Arundel Corporation	91
Asphalt Products Company	17
Atlanta & West Point R. R.	19
Atlanta Terra Cotta Co.	14
Atlantic Bridge Co.	23
Atlantic Crescoing Co.	
Atlantic, Gulf & Pacific Co.	
Atlas Car and Manufacturing Co.	90
Austin Machinery Corp.	
Austin-Western Road Machy. Co.	
Ayer & Lord Tie Co.	

## B

Babcock & Wilcox Co.	2
Ballingall Co.	30
Baltimore Commercial Bank	83
Bank of Alabama	1
Bank of New York & Trust Co.	24
Bannon Pipe Co.	24
Barber-Greene Co.	2
Barrow-Agee Laboratories	21
Barstow & Co., Inc., W. S.	16
Bates Steel Corp., Walter	23
Betty & Kipp	29
Bay City Shovels, Inc.	91
Bayley Co., Wm.	2
Belmont Iron Works	14
Benson Brass & Chandelier Works	1
Bessemer Galvanizing Works	1
Bethlehem Steel Co.	13
Biggs Boiler Wks. Co.	26
Biggs Engineering Co., W. E.	28
Billingley, James W.	20
Binswanger & Co.	17
Birmingham Boiler & Engr. Co.	13
Birmingham Galvanizing Co.	13
Birmingham Rail & Loco. Co.	28
Blair, Algernon	88
Blaw-Knox Co.	104
Bliss & Laughlin, Inc.	1
Bliss Co., E. W.	9
Blue Ridge Glass Co.	21
Blystone Mfg. Co.	2
Boiler Tube Co. of America	2

## C

Boney, Leslie N.	28
Bond, Geo. Harwell.	23
Boxley & Co., W. W.	91
Braden Steel Corp.	1
Briggs & Turivas.	1
Bristol Steel & Iron Works, Inc.	14
Broderick & Bascom Rope Co.	1
Brown-Seanlon Corp.	18
Brown Wood Preserving Co.	*
Bueyurs-Erie Co.	90
Buffalo-Springfield Roller Co.	92
Burkes, J. V. & R. T.	29
Butler Manufacturing Co.	1
Bylesby Engineering & Manage- ment Corp.	20

Cabot, Inc., Samuel.....	1
Cahill Co., W. S.....	1
Caldwell Co., W. E.....	26
Calligan & Co., A. H.....	1
Cambria Clay Products Co.....	1
Cameron Steam Pump Works, A. S. (Ingersoll-Rand Co.).....	1
Carborundum Co.....	1
Carnegie Steel Co.....	1
Carolina Steel & Iron Co.....	14
Carolina Wood Preserving Co.....	1
Cast Iron Pipe Research Asso.....	1
Caterpillar Tractor Co.....	13
Cattie & Bros., Joseph P.....	16
Cement-Gun Co., Inc.....	33
Cement Gun Construction Co.....	33
Central Foundry Co.....	24
Central Iron & Steel Co.....	91
Central of Georgia Rwy.....	1
Central Pipe & Supply Co.....	87
Central Power & Light Co.....	1
Chain Belt Co.....	1
Champion Bridge Co.....	14
Charleston Constructors, Inc.....	29
Charleston Dry Dock & Mch. Co.....	8
Charlton & Davis.....	28
Charlotte Leather Belting Co.....	1
Chase Brass & Copper Co.....	1
Chase, William J., Jr.....	28
Chatanooga Boiler & Tank Co.....	26
Chicago Bridge & Iron Works.....	26
Chicago Perforating Co.....	27
Chicago Pneumatic Tool Co.....	1
Christian Co., R.....	1
Clark, Lloyd T.....	1
Clark Tractor Co.....	85-86
Classified Opportunities.....	85-86
Cleveland Tractor Co.....	1
Clow & Sons, James B.....	88
Cohen, Chas. F.....	26
Cole Mfg. Co., R. D.....	1
Colonial Crotching Co.....	1
Combustion Engineering Corp.....	29
Conard & Busby.....	29
Congoleum-Nairn Inc.....	1
Connors Steel Co.....	28
Consoer, Older & Quinlan.....	88
Consolidated Products Co.....	33
Continental Gin Co.....	29
Converse & Co., J. B.....	33
Converse Bridge & Steel Co.....	14
Cook, Inc., A. D.....	25
Copper & Brass Research Asso.....	1
Cornell-Young Co.....	30
Corporation Service Co.....	1
Cowper Co., The John W.....	29
Crucible Steel Casting Co.....	13
Curtin-Howe Corp.....	1
Cutler Mail Chute Co.....	17
Cyclone Fence Co.....	1

## D

Dake Engine Co.	†
Dame-Wolfe & Co.	30
Dart Mfg. Co., E. M.	8
Davis & Son, G. M.	27
Davis Foundry & Machine Works	†
Davis-Paradis Watchman's Clock Corp.	†
Davison Chemical Co.	33
Day Pulverizer Co.	27
Dayton Safety Ladder Co.	†
Dee Co., Wm. E.	†
Deemer Steel Casting Co.	13
DeKalb, Courtenay	30
DeLaval Steam Turbine Co.	†
Delaware Registration Trust Co.	†
Delaware Wood Preserving Co.	23
Delta Equipment Co.	88

## E

Diamond Chain & Mfg. Co.	†
Dietrich Brothers	13
Dixie Culvert & Metal Co.	†
Dixie Culvert Mfrs. Asso.	†
Dixie Electro-Plating Co.	30
Dixon Crucible Co., Jos.	†
Dow & Smith	29
Downtown Iron Works	†
Draper, E. S.	28
Dunning & Boschert Press Co.	†
Duplex Hanger Co.	†
DuPont de Nemours & Co., E. I.	†

Earle Gear & Machine Co.	107
Easton Car & Constr. Co.	90
Edelblute Co., T. H.	†
Eichleay, Jr., Co., John	29
Electric Bond & Share Co.	83
Electric Service Co.	87
Electric Storage Battery Co.	35
Electric Wheel Co.	35
Ellicott Machine Corp.	90
Engineering Service Corp.	28
Eppinger & Russell Co.	*
Equipment Corp. of America	*
Erdle Perfomating Co.	27
Erie Machine Shops	92
Erie Pump & Engine Works	*
Ernst & Ernst	77
Eternit, Inc.	†
Evans Elevator Equalizer Co.	†
Excavating Equipment Dealers, Inc.	89

## F

Fairbanks, Morse & Co.	29
Fay, Spoford & Thorndike	29
Ferer & Sons, Aaron.	88
Fernholts Machinery Co.	13
First & Merchants Nat'l Bank of Richmond.	28
Flske-Carter Const. Co.	†
Flood & Co., Walter H.	30
Floyd & Loehridge.	29
Ford, Bacon & Davis.	29
Fort Worth (Texas) Chamber of Commerce.	†
Foster Co., Benjamin.	16
Frank, M. K.	89
Freeland, Roberts & Co.	28
Friend & Co.	91
Froehling & Robertson.	30
Fuller & McClintock.	28
Fuller Lehigh Co.	6

**G**

Galer Equipment Corp.	89
Galveston, Texas, City of.	†
Galveston Wharf Co.	†
Gardner & Howe.	28
Garraway & Co., S. G.	83
Gay & Co., W. O.	83
General Electric Co.	†
General Electric Vapor Lamp Co.	†
General Machine Works.	13
Georgia Creosoting Co.	†
Georgia Iron Works.	25
Georgia Marble Co.	17
Georgia Power Co.	†
Glamorgan Pipe & Fdry. Co.	24
Goldens' Foundry & Machine Co.	38
Granite City Steel Co.	†
Grasselli Chemical Co.	20
Greenpoint Iron & Pipe Co.	87
Gregory Electric Co.	86
Greiner & Co., J. E.	28
Gridley Constr. Co., Lee A.	28
Grinnell Co., Inc.	†
Gulf Refining Co.	24
Gulf States Creosoting Co.	23
Gulf States Steel Co.	†
Gunite Concrete & Constr. Co.	†
Gunite Construction Co.	†

## Н

Haas Pattern Co., A. W.	13
Hammond Iron Works	†
Hanchett Bond Co.	†
Harbison-Walker Refractories Co.	8
Hardaway Contracting Co.	29

Harnischfeger Corp.	8-90
Harrington Co.	9
Harrington & King Perforating Co.	29
Harrison, Wm. Henry	28
Harrub Engr. Co., C. N.	28
Harsa Engineering Co.	28
Hayward Co.	90
Heath Co., J. S.	1
Hedges Walsh Weidner Co.	28
Hedrick, Ira G.	28
Heiss Hotel System.	35
Hendrick Mfg. Co.	27
Hercules Powder Co.	1
Herty, Chas. H.	28
Hewitt-Phelps Mehry, Inc.	89
Hill & Griffith Co.	29
Hille Co., George B.	1
Hinde & Dauch Paper Co.	29
Hires Turner Glass Co.	20
Hollowell, Gorham & Co.	30
Holt Hardwood Co.	23
Honhorst Co., Jos.	92
Hood Co., B. Mifflin	28
Hoesier Engineering Co.	20
Hornbuckle Contracting Co.	28
Hough Shade Corporation.	1
Howell Electric Motors Co.	1
Howerton Engineering Co.	28
Huber Mfg. Co.	92
Hudson Pipe & Supply Co.	1
Huey, S. E.	28
Hunt Co., Robert W.	30
Hyatt Roller Bearing Co.	1

I

Industrial Brownhoist Corp.....	†
Industrial Lumber Co.....	23
Ingalls Iron Works Co.....	14
Ingersoll-Rand Co. (A. S. Cameron Steam Pump Works).....	†
International Correspondence School.....	81
International Filter Co.....	†
International Harvester Co. of America.....	†
Invicta Engineering Co.....	28
Irvine Iron Works Co.....	†
L. T. E. Circuit Breaker Co.....	†

## J

Jacksonville, Fla., City Commission	35
Jaeger Machine Co.....	†
Janney, Jr., Jon. A.....	92
Jenkins Bros.....	†
Jennings & Co., Floyd.....	29
Johnson & Hoehler.....	89

## K

Kaiser Klock Co., L. E.	†
Kansas City Bridge Co.	28
Kerlow Steel Flooring Co.	10
Kiesler Co., Jos. F.	90
Kimberly-Clark Corp.	†
Kinnear Manufacturing Co.	†
Kirby Lumber Co.	†
Knowles, Morris, Inc.	28
Knoxville Iron Co.	†
Koppel Industrial Car & Equip. Co.	90

L

Lacey Co., James D.	28
Lansing Co.	1
Law & Co., A. M.	1
Layne & Bowler, Inc.	1
Leadite Co.	38
Le Baron, E. T.	28
Lee Clay Products Co.	1
Lee Trailer & Body Co., Inc.	1
Lee, William S.	28
Lefell & Co., James	1
Lehigh Portland Cement Co.	1
Leitch & Sons Rope Co., A.	38
Lewis & Co., Henry	1
Lidgerwood Mfg. Co.	90
Light Manufacturing & Foundry Co.	1
Lindsay, Claude H.	28
Lookwood Greene, Engrs., Inc.	30
Lombard Iron Works & Supply Co.	8
Louisiana Corr. Culvert Co.	1
Louisville Cement Co.	79

Advt. marked ‡ not in this issue.  
Advt. marked † appear in first issue of month.  
Advt. marked \* appear every other week.

**Classified Opportunities** } Pages 85-86

Proposal  
Advertisements } Pages 84 to 85

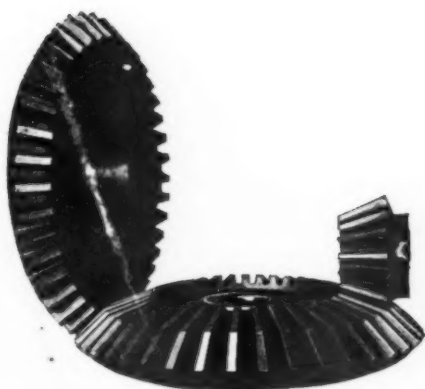
Resale Department } Pages 87 to 89 (2-30)

**The DAILY CONSTRUCTION BULLETIN** issued each business day by **Manufacturers Record** gives advance, reliable news covering whatever is being planned or started throughout the sixteen Southern states from Maryland to Texas in the way of industrial development, new construction work, building operations, engineering projects, public improvement work of all kinds, the organization of new firms for every purpose and other important phases of Southern development.

**Every firm interested in the great Southern market, will find this service of practical business value in keeping in close touch with sales opportunities.**

**Sample copies, subscription and advertising rates upon request.**

# What have "EARLE GEARS" to do with Masland Rugs?



C. H. Masland & Sons, Inc., makes rugs . . . beautiful rugs . . . lots of rugs. Velvet rugs for homes and plain rugs for automobiles. And gears are needed . . . for all of their machines . . . for all sorts of drives . . . well made, dependable accurately cut gears. We've made Earle Gears for the Masland folks for a long time . . . they'll tell you they are good gears . . . in fact, the best gears they can buy.

Let us show why you will find it worth while to make your specifications read "Gears by Earle."

## THE EARLE GEAR & MACHINE CO.

4719 Stenton Ave.

Philadelphia, Pa.

*Also manufacturers of Bridge Operating Machinery  
and "Lea-Simplex" Cold Metal Saws*

95 Liberty St., New York      26 Charles St., London, Eng.  
110 State St., Boston, Mass.      c/o Andrews & George Co.,  
117 King St., Melbourne, Australia      No. 5 Shiba Park, Tokyo, Japan

# The LIMA "101" has an integral ROLLER PATH 73" in Dia.



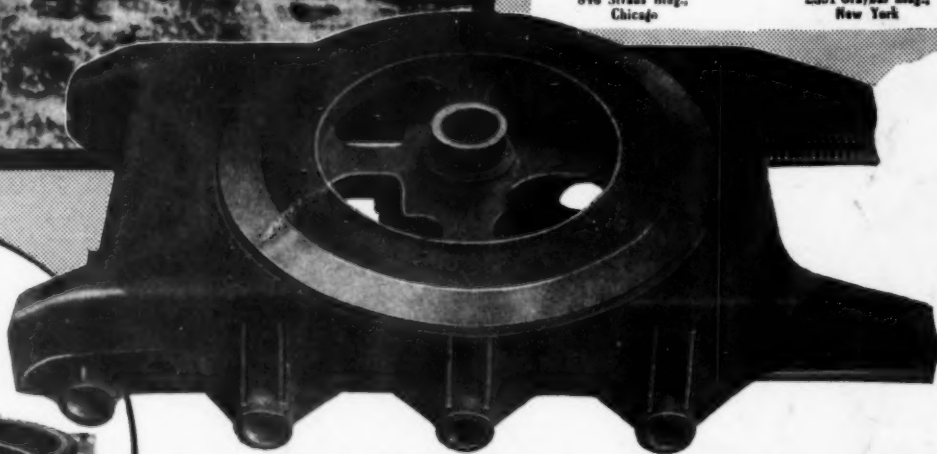
LIMA "101" owned by  
Bauers & Bauers,  
Pullman, Wash.

The LIMA "101" has an integral roller path, accurately machined on the truck frame casting, 73 inches in diameter--largest ever used on a shovel of 1 or 1 1/4 yard capacity. This oversize construction permits every digging strain to be evenly distributed to the large Timken equipped cone rollers and the possibility of tipping the upper deck, thus causing unnecessary strain on the center pin, is entirely eliminated.

Write today for your copy of bulletin 301  
**The Ohio Power Shovel Co.**  
Division Lima Locomotive Works, Incorporated  
Lima, Ohio

Western Office  
846 Straus Bldg.,  
Chicago

Eastern Office  
2351 Graybar Bldg.,  
New York



The rotating gear of the LIMA "101" has machine cut teeth and is shrunk onto the flange of the truck frame casting. It is held rigidly in place by twelve 1 1/4 inch fitted and driven bolts. This heavy duty construction, plus the advantage of a design that relieves the ring gear of carrying any weight is just another reason why your next excavator should be a LIMA "101".



309

# LIMA "101"

